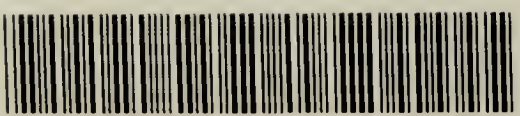


Report for the year 1972

Commissioner
of
Public
Health

Western Australia



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REPORT of the
Commissioner of Public Health
for the year 1972

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The Honourable Ronald Davies, M.L.A.,
MINISTER FOR HEALTH



Sir,

I have the honour to submit the Report of the
Department of Public Health for the Year 1972

WILLIAM SHARP DAVIDSON, M.B., Ch.B., D.P.H.
Commissioner of Public Health.



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ANNUAL REPORT, 1972



Hon. Minister for Health

Sir, I have the honour to submit the report of the Department of Public Health for the year 1972.

VITAL STATISTICS

The Birth Rate decreased from 23·50 to 20·99, the lowest since 1967.

The infant Mortality Rate of 15·7 per 1,000 live births is the lowest ever shown for this State, and for 1972 was bettered in Australia only by Victoria (14·4) which does not have our problem of a large aboriginal population.

The Stillbirth Rate per 1,000 total births was 11·50 the lowest recorded in W.A. since the recording of stillbirths was altered from a 28 week period of gestation to 20 weeks.

The General Death Rate decreased to 7·04, the lowest ever recorded in W.A. and the lowest in Australia.

Maternal Mortality was 0·14 per 1,000 live births.

These Vital Statistics indicate a very satisfactory state of health care in the State and a steady improvement in the results of that health care over the years.

A table labelled "Race Specific Infant Mortality per 1,000 Live Births" is included, although it refers to 1971. This information has been obtained by the Statistics Branch using Hospital Morbidity Reports as a basis of information and is probably the most accurate figures regarding Aboriginal Infant Mortality for a whole State that exist.

Because the numbers are small the rates in some places have an exaggerated appearance, but it is clear that during the neonatal period when most mothers and infants are in hospital the aboriginal infant mortality is 1·9 that in the white population ; in the next three weeks it is 4·6 times the white, and from 1 month to 1 year it is 12·2 times the white, thus indicating deficiencies in care after the mother has gone home and is no longer under hospital influence.

The total Aboriginal Infant Mortality per 1,000 live births is 76·9 and is five times the white Infant Mortality of 14·6, thus bringing the total Infant Mortality in the State up to 17·2.

LEGISLATION AMENDMENTS 1972

Nurses Act Regulations

Amended fees for registration and examinations (*G.G.* 25/2/72)

Again (*G.G.* 30/3/72) to provide for the keeping of the Register of Nurses and Nursing Aides.

Poisons Act

Amended (G.G. 11/2/72) to regulate the supply of the substance CLOMIPHENE.

Again amended (G.G. 11/2/72) to regulate the use of the substance L-DOPA.

Again (G.G. 15/9/72) to include the substance BUCLOSAMIDE in Part B of the prohibited substances list proclaimed on the 24th November, 1971 and altering the classification of some substances included in Schedules to the Act.

Clean Air Act (Sandblasting Operations Regulations)

New regulations were published in the *Government Gazette* of the 11th February, 1972.

Amended (G.G. 15/9/72) (a) To cancel the proclamations made on the 24th May, 1967, 28th September, 1967 and 20th October, 1971.

(b) To declare the whole of the State to be subject to the Act.

Health Act (Pesticides Regulations)

Amended (a) fees for registration of pesticides.

Amended (b) standards for containers for pesticides (G.G. 25/1/72)

Health Act (Meat Inspection and Branding Regulations)

Amended from time to time to include various Local Authority Districts as meat branding areas.

Health Act (Cigarette (Labelling) Regulations)

New regulations were published in the *Government Gazette* of 21st June, 1972.

Health Act (Caravans and Camps Regulations)

All former Caravans and Camps Regulations were revoked and new regulations were published in the *Government Gazette* of 30th June, 1972.

Health Act (Swimming Pools Regulations)

Amended requirements for exemption of Regulation 14 sub-regulations 2 and 3 regarding pool management (G.G. 12/7/72).

Health Act (Private Hospitals Regulations)

Amended requirements for granting of applications for registration as a private hospital (G.G. 26/7/72).

Health Act (Public Buildings Regulations)

Amended (G.G. 26/7/72) to allow reduced fees in certain circumstances.

Health Act (Hairdressing Establishment Regulations)

New regulations were published in the *Government Gazette* of 10th November, 1972.

Health Act (Food and Drug Regulations)

Sections of the regulations were amended regarding poisonous metals in foods, soft drinks, wines and spirits and liqueurs. (G.G. 1/12/72).

Health Act (Toxic and Hazardous Substances Regulations)

Amended (G.G. 22/12/72) to include lead as a dangerous substance when contained in pottery.

STATE HEALTH LABORATORIES

Dr. Laurie's report indicates a year of progress, expansion, uncertainty, change and renewed confidence by the staff in the future of the Laboratory Service.

Work has increased in volume (17·5 per cent overall) and in variety ; the country service has expanded and consolidated, with a new laboratory at Pinjarra, others being built and still more planned. The value to the State of a co-ordinated system of country branch laboratories with a strong base in the metropolitan area, has been stressed in previous Annual Reports, and is still evident.

Uncertainty about the early availability of suitable buildings for Central Laboratories has been removed to some extent by good progress on one of the Department's buildings on the Hollywood site, and the decision to complete portion of the second building.

Changes include a concept new to us—the introduction of a “ private sector ” in our pathology, extension into the Osborne Park Hospital and by the transfer of some of the routine diagnostic clinical work of the Sir Charles Gairdner Hospital to the laboratories of the University Medical School. The trend toward the development of community health services has been anticipated to a great degree in our Laboratories which are already equipped for, and have had considerable experience in survey work of various kinds, as well as investigations into epidemiology, industrial and environmental pollution and nutrition.

Staff morale was boosted during the year by steps toward a new staff organisation with improved career prospects, by highly successful participation in interstate and international quality control programmes, a vigorous post-graduate training scheme for technologists and other officers, and realistic salaries agreements.

Confidence in the future of the Laboratory Service was derived from a visit by an inspection party led by the Hon. Premier of Western Australia, and by the appointment of a Parliamentary Accounts Committee led by Mr. J. J. Harman, M.L.A. to inspect and report on the situation in the Laboratories. It was pointed out that this Service—the oldest established medical laboratory in the State—occupies a unique position, with responsibilities right throughout Western Australia, and is effectively meeting demands consequent on the State's rapid development, even in most remote areas.

TUBERCULOSIS CONTROL

Dr. Edwards reports an increase in notifications of new disease to 144, from 123 in 1971. This increase was largely accounted for by a marked rise in atypical mycobacterial infections.

Fifty-five per cent of all cases arose in persons born outside Australia, who now represent 27·49 per cent of the State population.

Only small numbers of cases continued to be discovered by mass compulsory surveys, as compared with other sources. After 20 years of compulsion these surveys were suspended in December for a 5 year observation period. Meanwhile the search for new cases is being actively pursued by other means already employed by the Tuberculosis Branch.

Treatment continues to be completely successful, apart from resistant atypical cases. The new drug Rifampicin is usually not effective in atypical disease, although its use in true tuberculosis, in combination with other drugs, appears to accelerate cure.

EPIDEMIOLOGY AND SPECIAL SERVICES

During 1972 there was a marked decrease in the notification of most infectious diseases, particularly those of intestinal origin, i.e. salmonellosis, infective hepatitis and bacillary dysentery.

This follows on a particularly bad year for these diseases in 1971 and probably reflects the extra work and care put in by Local Health Authorities in policing sanitary measures as requested in my last Annual Report.

Venereal Disease notifications continued to increase. How much of this is an indication of actual increase and how much is due to increased case finding and recording is difficult to say but it is significant that although the increase of V.D. recorded in males has been relatively small in the last year or two, the increase in females is incredibly high. This is largely due to the activities of the Venereal Disease Control Branch and its endeavour to find the unsuspecting female carrier and distributor of the disease.

The Branch's activities in this direction have been greatly facilitated by assistance from medical practitioners, the Department of Corrections and the Health Education Council.

The fact that 40 per cent. of all women notified as suffering from Venereal Disease are teenagers indicates the need for more educational drives of the type mentioned in the Report of Dr. Newnham.

CHILD HEALTH

In his report on the work of the Child Health Services, Dr. Carruthers indicates that there was a fall in both the birth rate and the total number of live births in 1972. The proportion of ex-nuptial births continues to rise slowly although the total number of these was less than in the previous year. There was a further gratifying improvement in the infant mortality figures in the Perth Statistical division and in the rest of the State but the latter rate remains relatively high.

A new Child Health Clinic was opened at Karratha but staff shortages continue to create problems in providing services for the rapidly developing northern towns in addition to the new metropolitan suburbs. Some rationalisation of country services has been possible and has partially relieved the pressure. Increasing emphasis is being placed on developmental screening of children throughout their pre-school years and this is reflected in a rise in attendances at clinics of pre-school children over the age of 1 year.

On the School Health side a Medical Centre with a full time school health sister was established at a Metropolitan State High School. This has proved to be a most successful venture and has been well received by all parties concerned. Plans are in hand for this type of service to be extended.

COMMUNITY HEALTH SERVICES

In Western Australia, Public Health Field Nursing has evolved gradually since 1965. In January 1972, this branch of nursing was co-ordinated and included in the formation of Community Health Services, a Branch of the Public Health Department.

The aims of Community Health Services are to upgrade the health and prevent disease in Aborigines and other depressed socio-economic groups and by a process of education to improve the standard of living in these groups. The Service has a State-wide orientation but confines its activities to those not handled already by other services or to areas where such other services do not extend.

Dr. Holman, the Director of the Community Health Services, gives a detailed account of the objectives of these Services and a Report on its first year of activities. Included in the Report are references to control of the various infectious diseases, including leprosy, which are of special interest to this Branch, and various statistics dealing with the health of aborigines.

DENTAL HEALTH SERVICES

This Service which has developed from, and takes over from, the School Dental Service, largely owes its origin to the difficulty in obtaining dentists for country areas. In consequence it has been necessary to use graduates who trained under a departmental cadetship to man country clinics and treat all persons presenting. A system of reduced fees for children and pensioners was introduced and in 1972 \$117,096 was used in subsidising this service.

A dental therapy scheme was introduced and legislation passed to employ dental therapists who act under the supervision of dentists after a special two year course in therapy.

A survey of metropolitan school children showed a reduction of 27 per cent. in caries of permanent teeth of 6 year olds since fluoridation began.

NURSING

Miss Beard's report draws attention to the employment of married nurses and the Emergency Nursing Service, as important factors in the difficult task of maintaining the Nursing Service at adequate strength throughout the State.

In Nurse Education she notes some important developments :—

- (i) Details of the hospital-based diploma course introduced in the Government School of Nursing in June 1972, to incorporate the regional peripheral hospitals, Royal Perth Hospital, Repatriation General Hospital and Swanbourne Hospital.
- (ii) Positive steps towards the establishment of an independent School of Nursing, which will be called the " West Australian School of Nursing ".
- (iii) The inauguration of the diploma course in Public Health Nursing at the West Australian Branch, College of Nursing Australia.
- (iv) At the Nursing Aide level : the pleasing progress of aboriginal girls through the first training course in Derby.

The list of inspections in her report indicates considerable activity in the supervision of departmental and board hospitals, as well as in the growing number of Private Hospitals and Nursing Homes, in which area over 1,000 new beds were opened during the year.

OCCUPATIONAL HEALTH

Dr. McNulty reports on the above while acting as Physician in Charge while Dr. Letham acts as Deputy Commissioner during the absence of Dr. Snow due to ill health.

Dr. McNulty makes the point that the drop in silicosis is due to a decrease in the number of gold miners employed and indicates that improvements in ventilation in mines are still required.

He again brings attention to the problem of asbestosis associated both with mining and industry. One hundred and thirty-seven (137) men have now developed asbestosis from working at the Wittenoom Mine and others have been affected from working with asbestos elsewhere. A number have died from asbestosis or malignant disease associated with asbestosis.

The deadly nature of the asbestos fibre, particularly the Blue Asbestos fibre, becomes more apparent with time and should point a warning against a re-population of the Town of Wittenoom before all tailings from the mine have been cleared from streets, paths, playgrounds, race course etc., or adequately sealed in bitumen or concrete.

GENERAL SANITATION

The Chief Health Surveyor has given his usual detailed account of the proceedings with regard to general sanitation during the year. Mr. Edinger's report on Food and Drugs should be read in conjunction with the Chief Health Surveyor's Report.

In addition to the inspections carried out on locally produced food the increased activity necessary to provide an inspection service for imported food should be noted. This now requires the full time activity of two officers on the Fremantle Wharfs and one at the marshalling yards.

Special attention was paid to the heavy metals and P.C.B. (polychlorinated biphenals) content of foods, particularly the mercury contents of fish, poultry and pigs. In general, the older and bigger the fish the higher its mercury content and poultry and pigs are affected from two sources—1. the improper use of "pickled" grain, and 2. the use of whale meat meal, in the feeding of these animals.

Pickling of grain with mercury compounds is being phased out.

Whales have a high mercury content in the flesh and particularly in the offal.

Having taken over the supervision of standards and quality of liquor, the Department has been active in the testing of these and the Report shows an impressive list of inspections carried out. Warnings were given in a number of occasions where standards were not being maintained and future deviations will meet with prosecution.

The standard of country abattoirs has greatly improved and many small slaughter houses which could not comply with the hygiene standards required went out of business.

The meat inspection staff have continued to assist the Department of Agriculture in the trace back of animal disease, particularly those transmittable to man.

Community Waste Disposal has received considerable attention and a report is being prepared on this subject. A major complication has been a decision by the Water Board to use, or reserve for use, the subsoil water in and around the Metropolitan Area. This method of obtaining water in a largely non-sewered area has produced considerable difficulties in dealing with the proper disposal of rubbish and waste materials.

MORBIDITY STATISTICS

Various tables are produced to indicate the diseases treated in hospital, their break down into various classifications, the beds they occupy, the length of stay, the types of accidents treated etc. Comparisons are made between sexes, ages, races and types of hospital etc. These tables are merely an indication that the information is recorded and is available in much greater detail for approved research purposes. All hospital discharges from both private and public general hospitals are recorded.

In Males the highest number of discharges occurs in the Accidents, Poisoning and Violence group. In the females however, if Pregnancy and Childbirth is omitted, the highest number is for diseases of the Genito-Urinary system. In both sexes diseases of the Respiratory System takes second place. In aborigines however Respiratory Disease is first in both sexes. Aborigines representing less than 3 per cent. of the population occupy 8·1 per cent. of all general hospital beds in the State.

Men are considerably more prone to Accident, Poisoning and Violence from infancy to advanced age than women, but the latter catch up and pass the men in the sixties. Accidental Falls has more discharges from hospital and occupies more beds than Motor Vehicle Traffic Accidents. It should be noted that “ discharges ” means discharges, transfers or death. The word is used instead of admissions because it is recorded on discharge with the diagnosis at discharge and not necessarily with the diagnosis on admission.

W. S. DAVIDSON,
Commissioner of Public Health.

27th November, 1973

Appendix I

VITAL STATISTICS FOR WESTERN AUSTRALIA (a)

	1967	1968	1969	1970	1971	1972
Mean Population—						
Males 	449,410	468,522	489,531	509,875	529,371	541,158
Females	430,405	447,235	466,129	484,326	502,243	515,350
Births—						
Males 	9,322	10,070	10,595	11,172	12,498	11,337
Females	8,701	9,471	10,159	10,446	11,741	10,840
Total 	18,023	19,541	20,754	21,618	24,239	22,177
Birth rate per 1,000 of Mean Population	20·48	21·34	21·72	21·74	23·50	20·99
Deaths—						
Males 	3,956	4,338	4,313	4,392	4,536	4,317
Females	2,823	3,120	3,037	3,151	3,270	3,124
Total 	6,779	7,468	7,350	7,543	7,806	7,441
Death rate per 1,000 of Mean Population.... 	7·71	8·16	7·69	7·59	7·57	7·04
Natural increase rate per 1,000 of Mean Population 	12·78	13·18	14·03	14·16	15·93	13·95
Infant Mortality per 1,000 Live Births—						
Perth Statistical Division 	13·5	17·1	18·3	18·1	17·0	13·1
Rest of State 	23·5	25·7	27·8	27·0	23·2	20·6
Whole of State	17·4	20·4	21·8	21·2	19·1	15·7
Stillbirths (b)—						
Perth Statistical Division 	118	155	165	184	194	173
Whole State 	188	243	250	295	298	258
Stillbirth rate per 1,000 total births 	10·32	12·28	11·90	13·46	12·15	11·50

(a) Includes events among the total population, including Aborigines.
(b) From 1st January, 1968, the term “ stillbirth ” for registration purposes refers to a child of at least 20 weeks’ gestation, not born alive. Previously it was restricted to cases where the gestation period was at least 28 weeks.

RACE SPECIFIC INFANT MORTALITY PER 1,000 LIVE BIRTHS BY RESIDENCE OF MOTHER
WESTERN AUSTRALIA, 1971*

INFANT MORTALITY BY LENGTH OF SURVIVAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Number of Live Births	Early Neonatal † (under 1 week)			Late Neonatal ‡ (1 week and under 4 weeks)			Post Neonatal § (4 weeks and under 1 year)			Total † (under 1 year)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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* Births and Deaths Actually Occurring during 1971.

† Rates per 1,000 live births.

‡ Rates per 1,000 (live births less early neonatal deaths).

§ Rates per 1,000 (live births less early and late neonatal deaths).

RACE SPECIFIC STILLBIRTHS, INFANT AND CHILDHOOD MORTALITY BY RESIDENCE OF MOTHER *
WESTERN AUSTRALIA, 1971

Statistical Division of Mothers Residence	Total Births			Stillbirths †			Infant Deaths ‡			Deaths in Ages 1-4 §																	
	Native	White	Total	Native		White		Native		White		Native		White		Total											
				No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate										
Perth	191	16,194	16,385	6	31.4	195	12.0	201	12.2	5	27.0	224	13.9	229	14.0	0	N.A.	36	N.A.	36	N.A.	36	N.A.	36	N.A.	36	N.A.
Southern-West	37	1,620	1,657	1	27.0	15	9.2	16	9.6	1	27.7	18	11.1	19	11.5	0	N.A.	5	N.A.	5	N.A.	5	N.A.	5	N.A.	5	N.A.
Southern Agricultural	76	1,034	1,110	1	13.1	11	10.6	12	10.8	4	53.2	16	15.6	20	18.1	0	N.A.	4	N.A.	4	N.A.	4	N.A.	4	N.A.	4	N.A.
Central Agricultural	102	1,092	1,194	1	9.8	12	10.9	13	10.8	5	49.5	18	16.6	23	19.4	0	N.A.	5	N.A.	5	N.A.	5	N.A.	5	N.A.	5	N.A.
Northern Agricultural	100	823	923	1	10.0	11	13.3	12	13.0	5	50.4	14	17.2	19	20.6	4	N.A.	4	N.A.	4	N.A.	4	N.A.	4	N.A.	4	N.A.
Eastern Goldfields	96	1,085	1,181	4	41.6	21	19.3	25	21.2	15	162.0	27	25.3	42	36.2	0	N.A.	3	N.A.	3	N.A.	3	N.A.	3	N.A.	3	N.A.
Central	44	28	72	3	68.1	4	35.7	4	55.6	8	194.8	0	...	8	117.6	5	N.A.	1	N.A.	1	N.A.	6	N.A.	6	N.A.	6	N.A.
North-West	77	212	289	1	12.9	3	14.1	4	13.8	6	76.6	2	9.4	8	28.0	0	N.A.	0	N.A.	0	N.A.	0	N.A.	0	N.A.	0	N.A.
Pilbara	79	598	677	3	37.9	7	11.7	10	14.8	0	...	11	18.6	11	16.2	3	N.A.	4	N.A.	4	N.A.	4	N.A.	7	N.A.	7	N.A.
Kimberley	217	182	399	10	46.0	4	21.9	14	35.0	27	130.4	4	22.4	31	80.3	4	N.A.	0	N.A.	0	N.A.	4	N.A.	4	N.A.	4	N.A.
State	1,019	22,867	23,887	31	30.4	280	12.2	311	13.0	76	76.9	334	14.6	410	17.2	16	5.6	62	0.8	78	0.8	78	0.8	78	0.8	78	0.8

* Births and deaths actually occurring during 1971

* Births and deaths actually occurring during 1971.

† Stillbirth Rate per 1,000 total births.

‡ Infant Death Rate per 1,000 live births.

§ Race Specific Rates by Residence not available for ages 1 - 4 until 1971 Census Data is released by Bureau of Census.

Appendix I I

State Health Laboratory Services

Wm. Laurie, D.S.O., M.D., T.D.D., F.R.C.P.A.
Director, State Health Laboratory Services.

I. ADMINISTRATION

General

During 1972 there was no change in the functions of the service. It is a Health Laboratory Service in the true meaning of the word, i.e. a combined hospital-public health laboratory service.

Accommodation

One of the two planned new central laboratories buildings will be completed in mid 1973 : the building of the other half has been delayed indefinitely which means that all sections of the central laboratories will have to be accommodated in approximately half the space originally planned. This concentration of units will be of considerable advantage but there still will be overcrowding in some laboratories. A further complication was the necessity to provide some facilities for University Departments.

Accommodation, Branch Laboratories

The new permanent laboratory in Warren District Hospital, Manjimup, has proved highly successful : with minor modifications this plan could serve as a model for branch laboratories in hospitals of medium sizes.

At the end of 1972 a building in Albany Regional Hospital was being converted to replace the present small laboratory suite in the hospital.

For Port Hedland a prefabricated laboratory of ample size, similar to the very satisfactory double laboratory at Derby, has been completed and is ready for transportation by road.

Plans have been prepared for laboratories at Carnarvon and Rockingham, and prefabricated laboratories have been ordered for Dampier and Mount Tom Price. One such laboratory was supplied to Pinjarra Hospital in 1972.

Smaller units for specimen collection and despatch have been established at Kununurra and Pingelly : these are similar to the units previously established at Bridgetown and Margaret River : a similar unit has been recommended for the new hospital at Wickham.

Stabling for Horses

With the co-operation of Commonwealth and State Departments it was possible to purchase a Vehicle Store building 120 feet x 40 feet. This has been erected in the grounds of Claremont Hospital with the approval of the Director of the Mental Health Services. With this new accommodation it is now possible to accommodate not only our own horses needed for blood supplies, but also the horses used by other laboratories in the area.

Tours and Conferences

Professional officers of the service have visited the Eastern States on a total of ten occasions during 1972 : the visits included attendance at International Conferences, Commonwealth Conferences, visits to Eastern States Laboratories etc.

Senior staff also went overseas on various assignments including tours of Laboratories in the United Kingdom, attendance at a Forensic Conference in Edinburgh, attendance as an Australian delegate to an International Conference of Medical Technologists in Vienna, and attendance at an International Conference of Cytogenetics in Vienna. At the request of W.H.O. the Director spent some months touring laboratories in the larger countries in the Western Pacific. The tour extended from New Zealand and Australia in the South to Korea in the North, and from Singapore in the West to the Philippines in the East. At the end of the year the Director attended a Laboratory Seminar in Manila. Twenty three Western Pacific countries were represented.

Visitors

During the year the Laboratories were visited by several overseas and Australian visitors, these included the following :—

Dr. Noel Johnston of the Queensland State Laboratory Services.

Dr. Virginia Sevilla, W.H.O. Fellow from the Philippines Laboratory Service.

Professor Barrie Jones, University of London Institute of Ophthalmology.

Miss G. Stout, W.H.O. Consultant in Venereal Diseases (C.D.M.S., Atlanta, Georgia, U.S.A.).

Surveys

Reference is made elsewhere to survey work done by individual laboratories. In addition to this, the Service provided staff, equipment and transport for further work connected with the Busselton Survey, as well as completing the Cunderdin Survey commenced in 1971, and assisting in research on the nutrition and general health of native children.

II. STAFF

In 1972 the total work load both in the central laboratories and in the branch laboratories showed an increase of almost 18 per cent. compared with the work done in 1971. This increase is much the same as the rate of increase each year for several years running and is about the average increase reported from other parts of the world. This rate of increase in the work load cannot be matched by a corresponding rate of increase in staff, and indeed it is debatable whether such an increase would be justified. As discussed later, it is suggested that the answer lies not in continuing uncontrolled increases in the laboratory staff, but in imposition of reasonable controls over irresponsible demands by clinicians. Until this happens, we shall have to meet the increasing demands as best we may, by increasing automation and by increased overtime. The latter is much to be deprecated both from the point of view of the taxpayer and from the point of view of the health of the laboratory staff.

1. Changes (including Branch Laboratories)

Position	Recruited	Resigned
Pathologists	—	1
Medical Registrars	—	—
Senior Technologists	—	—
Technologists	11	10
Cadet Technologists	—	—
Laboratory Assistants	13	13
Laboratory Attendants	42	27
Nurses	9	—
Clerks	—	2
Typists	6	2
Storemen	2	2
Watchmen	2	2

2. Sickness

The over-all sickness rate in 1972 was up 10.4 per cent. compared with 1971. This is more than 25 per cent. greater than 1970, a disturbing phenomenon. In total the sickness rate represents 1.7 per cent. of 95,000 working days.

Sickness Analysis

Medical staff who make up	4%	of the work force accounted for	7.4%	of the recorded working days lost.
Senior Technologists	12%	—	15.4%	—
Technologists	14%	—	17.4%	—
Cadets	3%	—	2.1%	—
Laboratory Assistants	14%	—	16.4%	—
Laboratory Attendants	50%	—	44.3%	—
Other Staff	15%	—	14.4%	—

The sickness rate of the medical staff is nine times higher than in 1971, due almost wholly to chronic sickness in one officer. The larger increase in the sickness rate among laboratory technologists is due to long term hospitalisation of one staff member injured in a motor vehicle accident. One laboratory attendant also was involved in a motor vehicle accident and subsequently was off duty for 58 days.

3. Clerical Staff

Shortage of clerical staff continues to be the bottle-neck explaining the worrying delay in sending out reports after investigations have been carried out. An Organization and Methods team has now begun to study this difficult problem. The introduction of computers in 1973 should significantly improve the situation.

4. Medical Staff

In 1972 there were two important changes. One was the resignation of our haematologist who took up a position with the local teaching hospital. The other was a new arrangement whereby the histopathologists undertook outside commitments but continued to provide a complete Histopathology Service to the State Health Laboratories

5. Technologists

In 1972 four cadet medical technologists of this service completed the Associateship Course at the West Australian Institute of Technology and were appointed to the permanent staff.

Advertisements of vacancies for Level I Technologists for some of our country branches produced no applications from qualified workers. Reasons for this include : shortage of fully qualified versatile technologists : reluctance to serve in country areas : and better prospects in laboratory services not bound by the rigid rules of the Civil Service. The situation recently has been improved by a new triennial salaries agreement even though the base grades receive very little advantage, but on the whole the new agreement does present more realistic career prospects which should improve recruitment.

The posting of technologists to country branch laboratories still presents problems : housing is unsatisfactory and married female technologists do not agree to transfer.

6. Technology Training

Reference has been made above to the cadetship scheme : this has proved very satisfactory. In addition plans have been implemented for in-service training and re-orientation training of senior technologists in charge of branch laboratories. Several senior technologists are now undertaking post-graduate courses at the West Australian Institute of Technology and the University of Western Australia. Arrangements are now in hand for a senior technologist to attend a three months course in Cytology in Melbourne : this will be followed by an International Tutorial Course also conducted in Melbourne.

III. WORK DONE 1972

1. General

A detailed tabulation of work done in 1972 is given in the Appendix.

It should be noted that for the first time we have reported work done only as number of tests carried out. We no longer report the unit values of this work because of the radical changes in unit values consequent upon the introduction of automation in several laboratory sections.

Table IA summarises the work done in the central laboratories in 1972. This work shows an increase of over 17 per cent. compared with work done in 1971.

When we last analysed our figures the analysis showed that about 75 per cent. of haematology investigations gave results within normal limits, and to some extent this also applies in Biochemistry. The number of investigations ordered for each patient is in inverse proportion to the seniority of the clinician concerned, and it is suggested that, at least in hospital practice, requests for time-consuming and expensive tests should be countersigned by senior clinicians.

Table IB summarises the work done in the country laboratories in 1972. The increase of work in 1972 compared with 1971 is almost 18 per cent. To some extent this reflects the improved state of the economy in the country districts. During the stagnant phase of the country economy in 1971 the country practitioners limited their requests as far as possible to essential investigations. This is shown by the high percentage of abnormal results from the tests carried out compared with the high percentage of normal findings in tests carried out in the central laboratories.

2. Microbiology

Tables II A-F, appendix, summarise the work done in the Microbiology Section during 1972. All sections show an increase in work done in 1972 compared with the work load in 1971. There was much variation from unit to unit, ranging from an increase of 1·8 per cent. in the mycobacteria laboratory to 23 per cent. in the Virology Laboratory. Much of the work is repetitive in character and will soon necessitate automation. Notes on each unit are given below.

Clinical Bacteriology

The work increased by 10 per cent. compared with the work load in 1971. Table IIA of the Appendix gives details.

As in previous years urine analysis and culture investigations were carried out as part of the Busselton Survey with over 3,000 patients examined during 1972. Another interesting continuing investigation is a study of the biochemical and cultural characteristics of the *Pseudomonas* group of organisms. It is noticeable that *pseudomonas* from clinical material are rarely typical *Ps. aeruginosa* : no satisfactory explanation has yet been found to account for this. Interesting other *Pseudomonas* species isolated during the year included *Ps. pseudomallei* from a pulmonary case and *Ps. stutzeri* from the wall of a hospital sterile supply department. The potential pathogenicity of *Serratia* species was shown by the high incidence of *S. marcescens* from sputa and sometimes from urine, especially during the winter months. The patients producing this organism were usually on heavy antibiotic treatment.

Cross-infection monitoring of a local teaching hospital was organised on a routine basis and also proved of value in the testing of disinfectants.

Other work included the comparison of the Kirby-Bauer method of antibiotic sensitivity testing compared with the multidisc method of testing. Results showed certain discrepancies. This work continues.

Phage Typing

This was continued as a reference service : the results are tabulated below.

PHAGE GROUP DISTRIBUTION (%)

	Children's Hospital	Repatriation Hospital	Long Term Patients	Country Laboratories
No.	533	129	366	399
Group 1	23·5	19·0	19·0	23·5
Group 2	14·5	8·5	5·0	9·0
Group 3	20·5	29·0	19·0	28·5
Group 4	1·0	1·0	0·5	1·5
Group 5	13·0	9·5	8·5	14·0
Group 6	1·0	1·5	0	0
Group 7	26·5	31·5	49·0	23·5

1133 strains were typed as part of a research project including strains from foodstuffs and from miscellaneous sources. *Salmonella typhimurium* phage typing was brought in as a routine ; a retrospective study from 1962-69

Public Health Bacteriology

- (1) A comparative study on the tube M.P.N. method of estimating coliform organisms was investigated using purple McConkey Broth and minerals-modified Glutamate medium. The two methods gave comparable results for the total and faecal coliforms in fresh water and drinking water but for sea water and estuarine waters the McConkey Broth was superior for both total and faecal coliforms.
- (2) In 1972 an outbreak of food poisoning occurred in a country centre. Almost 20 people had to be admitted to hospital with symptoms suggesting *Staphylococcal enterotoxin*: the cause was found to be unpasteurised milk which later was found to be contaminated with *Staph. aureus* phage types 6/53/54/75/83A/88/42D and 81. Phage types isolated from material from the patients included 6/53/54/75/81/83A and 88. The milk had been stored overnight prior to being consumed.
- (3) A surveillance of drinking water for *actinomyces* was carried out during the summer months. Over the three-months period 82 samples were found to be positive. There was a random distribution over the sampling area and the levels were low. These findings correlated well with a low number of taint complaints during the period of testing.
- (4) During the unusually warm spell in early spring an activated sludge package plant produced a thick foam. This was found to consist of a matrix of *Actinomyces mycelium*: after initial removal of the foam, control was maintained by keeping the pH above 7.0.
- (5) A problem similar to the above was found at a malt treatment plant where a dense surface mat was shown to be due to a mixed growth of fungal and yeast species including *Gestrinchium candidum*, *Candida perusei* and *Mucor* species. This was controlled by more efficient aeration and pH control.
- (6) In 1972 two children were found to be infested with *Ornithonyssus bacoti* the tropical rat mite. The two cases were found in widely separated areas of the city and both were associated with old-type homes infested with mice and rats. Originally the infestation was thought to be due to chicken mites. The tropical rat mite has previously rarely been reported from humans but is probably more common than previously thought.

Water and Sewerage Surveys

Table IIB of Appendix lists the work done in 1972: as seen, during the year, there was extensive monitoring of rivers, lakes, beaches and effluent. A total of 691 *Salmonella* were isolated.

Enteric Disease Laboratory—See Table IIC Appendix.

Although there was no large-scale outbreak of *Salmonella* or *Shigella* infection during 1972 the diagnostic programme expanded and there was an increase in the number of strains referred for sero typing. In all, a total of 690 *Salmonella* and 457 *Shigella* strains were identified during the year. In spite of the sparse population, the North-West area of the State produced more *Shigella* strains than the metropolitan area. Also from the North-West there was a considerable increase in the number found with enteropathogenic coli strains, mostly from infants. Late in 1972 the laboratory received specimens from suspect cases of cholera and specimens from contact cases related to an Australian outbreak of cholera. All were negative.

There was one isolation of *Vibrio parahaemolyticus* from oysters.

The investigation continued of domestic and wild animals for *Salmonella* and Arizona infections. From this there were 748 isolates. Marsupials were especially investigated and an interesting finding was the frequent presence of *Salmonella* organisms in quokkas. This study has been expanded to further evaluate the epidemiological significance of the infections. Further details are to be found in a supplement to be published, giving details of all findings during the year.

Parasites

The number of specimens examined for bowel parasites continues to increase. Surveys in the North-West resulted in the finding of *Ancylostoma duodenale*, *Hymenolepis nana*, *Trichuris trichiura* and *Giardia lamblia*. Examination of soil samples for nematode larvae in the same area illustrated the need for development of improved methods of specific identification.

In a comparison of direct microscopic examination of stool specimens compared with formol-ether concentration methods, the number of hookworm cases was almost doubled (84 to 179) by the concentration method. Significant increases were also found with *Hymenolepis* and *Strongyloides* but not with *Giardia* infections.

Venereal Diseases

Isolations and smear-positive findings of venereal disease are recorded in Table IIA Appendix. During the year attempts were made to determine the frequency of isolations and positive smear findings in country laboratories to assist in obtaining an estimate of the situation in the State.

In conjunction with the Venereal Diseases Clinic, the latter part of the year there was begun a continuing study of the association of *Chlamydia* species in venereal disease, especially in non-specific urethritis. Isolations of these agents have been obtained and significantly, they have been obtained from cases from which no other pathogen was identified. Some other cases yielded Cytomegalovirus and type 2 Herpesvirus.

Mycobacteria

The work of this section is summarised in Table IID Appendix.

In 1972, 12,268 specimens including 380 referred strains were received and processed in this section—the following is a breakdown of isolations and identifications achieved.

M. tuberculosis	M. bovis	B.C.G.	I	II	III	IV	Total	Under Exam.
699	46	8	27	28	3·51	28	1187	18

824 indirect and 287 direct sensitivity tests were done—Rifampicin is now included for all clinical strains. Two papers are in preparation on the subject of Rifampicin sensitivities of routine isolates and of blood levels of Rifampicin related to therapeutic response.

Serotyping of atypical strains, particularly those of Runyon's groups II and III has continued and in 1972 the following serotypes were identified :—

Serotype								
Arnold	....	....	....	....	....	....	....	5
Boone	....	....	....	....	....	....	....	22
? Chance	....	....	....	....	....	....	....	49
Darden	....	....	....	....	....	....	....	62
Fortuitum	....	....	....	....	....	....	....	4
Gause	....	....	....	....	....	....	....	9
Lunning	....	....	....	....	....	....	....	28
Watson	....	....	....	....	....	....	....	19
Yandle	....	....	....	....	....	....	....	3
IIIB	....	....	....	....	....	....	....	4
No Agglutination	....	....	....	....	....	....	....	76
Auto. Agglut./Rough	....	....	....	....	....	....	....	33

314

The laboratory is participating in a collaborative study with other mycobacteria laboratories throughout the world on the laboratory characterisation of the *M. tuberculosis* complex.

Mycology

The work done in this section in 1972 is summarised in Table IIE Appendix.

Mycology Laboratory

The same general pattern of mycotic infections as in previous years persisted with very little seasonal variation in the amount or type of infection. The heavy pressure of work was only countered by the appointment of a third technologist in August.

Two unusual cases were investigated during 1972, one a case diagnosed clinically as Madura Foot from which *Actinomyces israelii* only was isolated. (In cases of Madura Foot it is important to identify the causal agent, as many unrelated fungi can cause this disease and only a few of them respond to antibiotics). In the second case, *Curvularia* was isolated from both the sputum and sputum plugs of a patient with pulmonary disease. This is a most uncommon pathogen in humans although a regular agent of plant disease.

Virology

The work done in 1972 is summarised in Table IIF Appendix.

The Virus Laboratory has continued to achieve considerable success, in providing a service of wide coverage in both isolation and serological examinations. A list of the various infections in which isolations or serological diagnoses were obtained, is shown below.

During the year, a major epidemic of Echo 30 infection associated with meningitis started at the beginning of March and continued into the winter with sporadic cases occurring as late as August.

Influenza A infection was diagnosed in both the metropolitan district and in the Wheatbelt centred on Cunderdin. Influenza B was also found in these areas as well as in the Derby district. Once again, Respiratory Syncytial Virus caused illness amongst children at the beginning of May continuing in epidemic form until the end of August. Parainfluenza viruses were isolated throughout the year and they were found in association with croup in children and were predominately type 3. Work on Coxsackievirus infections was hampered by the extremely large number of specimens of sera sent in for this expensive and time consuming test. The results of the work carried out for one cardiologist were the subject of a paper read by him at an international meeting in Singapore in August. The results of these and other studies are being prepared for publication.

The electron microscopy work has reached the stage where no fewer than four members of the staff proved highly competent in the use of the machine and the recognition of specific viruses in suspect materials. (The use of the microscope in the Physics Department in the University of Western Australia, due to the kindness of Dr. Lucas, is acknowledged). The difficulties associated with preparation and examination of specimens should be overcome next year when our own electron microscope is installed in the new building.

Virus					Isolation	Serology	Both
Polio type 1	....	....	....	....	24	2	....
Polio type 2	....	....	....	....	20	....	2
Polio type 3	....	....	....	....	18	....	1
Coxsackie A 9	....	....	....	....	5	....	....
Coxsackie A (untyped)	....	....	....	....	47	....	....
ECHO Type 1	....	....	....	....	7	....	....
ECHO Type 3	....	....	....	....	1	....	....
ECHO Type 7	....	....	....	....	2	....	....
ECHO Type 8	....	....	....	....	4	....	....
ECHO Type 9	....	....	....	....	17	....	2
ECHO Type 11	....	....	....	....	30	1	....
ECHO Type 14	....	....	....	....	34	....	....
ECHO Type 17	....	....	....	....	4	....	....
ECHO Type 18	....	....	....	....	3	....	1
ECHO Type 21	....	....	....	....	5	....	....
ECHO Type 22	....	....	....	....	23	....	....
ECHO Type 25	....	....	....	....	2	....	....
ECHO Type 27	....	....	....	....	2	....	....
ECHO Type 30	....	....	....	....	120	33	30
ECHO Type 31	....	....	....	....	3	....	....
ECHO Type 32	....	....	....	....	2	....	....
ECHO (untyped and FLAM Agent)	....	....	....	....	59	....	....
Coxsackie B 1	....	....	....	....	....	7	....
Coxsackie B 2	....	....	....	....	8	9	3
Coxsackie B 3	....	....	....	....	3	15	....
Coxsackie B 4	....	....	....	....	3	23	....
Coxsackie B 5	....	....	....	....	19	20	4
REOvirus	....	....	....	....	3	9	....
Rhinovirus H strains	....	....	....	....	8	....	....
Rhinovirus M strains	....	....	....	....	4	....	....
Adenovirus Type 1	....	....	....	....	33	....	....
Adenovirus Type 2	....	....	....	....	33	....	....
Adenovirus Type 3	....	....	....	....	72	....	....
Adenovirus Type 5	....	....	....	....	20	....	....
Adenovirus Type 6	....	....	....	....	2	....	....
Adenovirus Type 7	....	....	....	....	2	....	....
Adenovirus Type 14	....	....	....	....	1	....	....
Adenovirus Type 21	....	....	....	....	1	....	....
Adenovirus (untyped)	....	....	....	....	9	15	7
Influenza A	....	....	....	....	53	21	8
Influenza B	....	....	....	....	32	19	1
Influenza C	....	....	....	....	....	5	....
Parainfluenza 1	....	....	....	....	4	5	1
Parainfluenza 2	....	....	....	....	6	2	....
Parainfluenza 3	....	....	....	....	51	22	3
Parainfluenza 4	....	....	....	....	2	....	....
Mumps	....	....	....	....	26	16	3
Respiratory Syncytial Virus	....	....	....	....	81	17	10
Herpes simplex	....	....	....	....	122	6	5
Cytomegalovirus	....	....	....	....	40	5	4
Varicella	....	....	....	....	1	6	....
Measles	....	....	....	....	....	11	....
Rubella	....	....	....	....	3	81	....
Psittacosis	....	....	....	....	....	4	....
Coxiella burneti	....	....	....	....	....	9	....
Mycoplasma pneumonia	....	....	....	....	....	13	....
Ross River Virus	....	....	....	....	....	17	....
Coronavirus	....	....	....	....	....	3	....
Australia antigen	....	....	....	....	....	81	....
TRIC agent	....	....	....	....	11	....	....
Human Wart Virus	....	....	....	....	1	....	....
					1,074	476	85
Specimens for Isolation 5,918							
Sera 16,456							

Mycoplasma

Selective clinical samples were tested for mycoplasmas which included both respiratory tract and urogenital tract specimens. Only two isolations of *Mycoplasma pneumoniae* were made during the year and it remains a surprising feature of respiratory tract infection in Western Australia that the organism is so rarely found in contradistinction to experience in Scandinavia and North America. On the basis of work carried out it is now accepted that other *Mycoplasmas* with the possible exception of T-strains, are of no clinical significance in urogenital tract lesions.

3. Biochemistry

This year's work is summarised in Table III of the Appendix. The usual increase occurred—this year of 13·4 per cent., and the total of tests reached the figure of 380,000 or over 1,000 per day, including weekends and holidays. This total was reached without staff or accommodation increases, and the strain on the staff is undoubtedly great now.

There was not much time or space for diversifying methodology, nor of accommodating new instruments. Nevertheless, total oestrogen estimation in urine of pregnant women became a welcome addition to the family of tests and quality control programmes were pursued vigorously. Not only our own programme extended to all country laboratories, but also interstate ones like the College of Pathologists and international ones like the W.H.O. Urea and glucose programmes were sampled by us. Our Biochemistry laboratory was the only one in Western Australia to achieve a satisfactory standard at the first attempt in Part I of the W.H.O. Urea/Glucose quality control programme. The Burroughs Wellcome quality control programme was also adopted, and, in general, we can be very satisfied with our technical standards. Quality control has meant fairly rigid standardization of methodology in country laboratories, but this is an obvious advantage if a comparison of results is to be made.

There was a marked increase in demands for cholesterol and tri-glycerides, and again considerable diversification in industrial biochemistry, with continual demands for analysis of pollutants including atmospheric ones like benzpyrene and sulphur dioxide. Toxicology continued to expand with new formulations of tranquillizers, antidepressants etc., being tested for in blood or urine, and a start made on analysis of some drugs of addiction like marihuana.

There were no major changes of staff or space during the year. In order to cover urgent requests quicker than heretofore it was agreed that a technologist would be available between the hours of 5 p.m. and 10 p.m. in the biochemistry section. This provides adequate cover in the time of greatest need. Equipment obtained included a Vickers two-channel analyser capable of 300 analyses per hour, an osmolarity meter and a new two-channel Technicon Autoanalyser. Further purchases were not advised owing to financial considerations and lack of space.

There were no major surveys during the year ; despite this the overall pattern of work showed a steady increase, as already shown. Towards the end of the year, a computer was delivered to the combined units of biochemistry and haematology. This is an on-line unit designed primarily to service the automated machinery in these two departments, but also to perform off-line functions for other sections. It was not expected to be operational for some months.

4. Haematology

The work of the section is summarised in Table IV of the Appendix. The total of tests for the year shows an increase of 26 per cent. over 1971, the number of tests reaching a figure of 233,000. Increases were general in all fields—automated tests, blood grouping, cross-matching, prothrombin times etc. The range and scope of coagulation testing was increased: steps were taken to align our local thromoplastin with the international standard produced in the United Kingdom. Analysis of fibrinogen degradation products is now routine, and coagulation profiles are common.

There were no major surveys during the year, although a few minor investigations were successfully dealt with. Staff did not increase in number but the technologist position in general was more satisfactory in the Division than it had been for some years. An extra senior technologist post was created.

It was decided towards the end of the year to change the present microbiological assay of Vitamin B12 to a radioisotopic method. This would give a quicker result and experiments over the past few years had demonstrated the feasibility of this assay.

During the year there were no changes in accommodation, which still remained at a premium. It is unlikely that any diversification of work or widening of horizons can occur until a move is made to the new buildings. The haematology section shared in preliminary work to link results to the new computer.

5. Radioisotopes

The year's work is summarised in Table V in the Appendix.

Routine clinical demands increased this year, though overall figures did not reflect this. It may be remembered that nearly 2,000 insulin analyses for the Busselton Survey had expanded the 1971 totals. In particular, thyroid tests and digoxin assays became even more popular. Once again, only one-third of the tests came from the Sir Charles Gairdner Hospital, the State producing the remainder. No new procedures were introduced owing chiefly to the growing demand and lack of space. No new equipment was purchased.

Tests are now done much more quickly than used to be the case : thyroid tests are reported within 24-36 hours.

6. Morbid Anatomy and Cytology

Tables VIA and B of the Appendix detail the work done in this section during the year. Surgical biopsy specimens again showed the usual increase ; the total was nearly 7,000 and the resultant work produced an increase of 34 per cent. on the 1971 figures. This increase in biopsy work—the most important aspect of a histopathology laboratory's work—could only be accommodated by cutting back on less essential tasks. For example the number of clinical post-mortems done for the hospital shows a dramatic reduction. The University Department of Pathology had to assume responsibility for clinical post-mortems of the Sir Charles Gairdner Hospital, therefore some time before they had originally intended to do so.

The reasons for this forced-redeployment of work are obvious. The continual increase in work load has been paralleled by a decrease of pathologists and no commensurate increase in technologists. One pathologist retired and was not replaced, so that a volume of work much greater than was done three years ago had to be performed by half the professional staff (two histopathologists against three plus one registrar).

That the section's work was more highly appreciated was shown not only by increase in volume of biopsy work, but also by the much greater number of requests for frozen sections. Not only were these done for the Sir Charles Gairdner Hospital, but occasional trips were made to Bunbury, Pinjarra, Narrogin and Osborne Park Hospitals. These trips could not be undertaken as often as perhaps one would like, owing to the pressure of work day in and day out at the main laboratory, but were much appreciated locally.

There was a decline in forensic autopsy work and consequently in the histological examination of tissues from these autopsies. There was a slight decline in special staining, due to lack of time on the average biopsy from staff shortages.

During the year, immunofluorescent tissue antibody tests were firmly established and became popular with clinicians.

Accommodation

This continued to cause problems. The main histopathology technical work was done in adapted quarters in a hospital house, in somewhat cramped conditions. Autopsy sections were produced in a room near the mortuary, and frozen sections in an annexe to the toxicology section of biochemistry some hundreds of yards from the main histopathology area. Cytology was split between two areas, one of which was at the King Edward Memorial Hospital for some part of the year. The logistic and administrative problems caused by this diversity of work areas, none of which was near any other, was great, and it says much for the technical direction of the section that so little friction resulted.

Forensic Pathology

For work done during the year see Table VIA. Again the total volume of work done was no greater than in the previous year, but more visits were made to country areas all over the State on request from local coroners. Steps were taken to recruit a third forensic pathologist so that the section could cover its commitments despite leaves, absences at Court etc. Toxicological work was expanded and a start was made on analysis for marihuana derivatives. Again, accommodation dictated moving even more of the staff to outlying laboratories in Perth, away from the main centre.

Cytology

There was again an upswing in the amount of work done by 12 per cent., cervical specimens showing a greater increase—18 per cent.—as against 8 per cent. for sputum specimens. The large majority of the former came from the State, the latter from the Sir Charles Gairdner Hospital.

Accommodation was again an almost insoluble problem, and the fragmentation of service continued. For a great part of the year the cervical cytology was managed by Professor Barter at the King Edward Memorial Hospital, in the absence of Doctor Laurie abroad and with problems in recruiting screeners of satisfactory standard. The continued overcrowding is not conducive to screeners staying in the department when better conditions and salary may be had elsewhere. Undoubtedly only a small proportion of women at risk from cervical pathology, or men and women at risk from pulmonary pathology, are examined every year and one can only hope for a more complete coverage in the future.

7. Serology

The work done in the Serology Department in 1972 is shown in Table VII of the Appendix.

Accommodation remains a major problem with the Serology Department, like others fragmented and working in three different parts of the town.

V.D. Serology

During late 1972 Miss Stout the W.H.O. Advisor spent 10 days in the Serology Department to advise on the Serology recognitions of syphilis and gonorrhoea.

The F.T.A. (Abs.) test was started in January and became a routine procedure after sufficient practice had been obtained. The Department took part in 1972 in the W.H.O./C.D.C. quality control tests sent out every two months from the Centre for Disease Control, Atlanta, Georgia : these included V.D.R.L. and F.T.A. tests. Subsequent to the visit of Miss Stout we replaced the V.D.R.L. tube test with the slide test, and began quantitating all reactive sera : these quantitative V.D.R.L. tests have now replaced the quantitative W.R. test. The former possesses certain advantages over the W.R., e.g. it reflects more readily the change in titre in patients receiving treatment.

One Senior Technologist visited Sydney in 1972 to discuss diagnostic reagents with Messrs. Burroughs Wellcome and to attend a course on the use of automated equipment in the serology of syphilis. During the year the automated equipment for the reagin test arrived and preliminary work has been carried out on it.

Automated equipment also arrived for carrying out C.F. tests but it is incomplete due to damage to some of the equipment in transit.

Problem sera encountered in this branch of the work are sent to the V.D. Reference Laboratory Whitechapel, London where Doctor Wilkinson and his staff continue to give us valuable assistance.

Forensic Serology

During the year there was a very marked increase in this work compared with 1971, necessitating the employment of additional staff. Immuno-electrophoretic techniques are being more fully utilised, blood grouping methods are being extended and success has been achieved in the grouping of human hair using a technique shown to the Director on his visit to Japan.

It is urgently necessary to expand techniques on blood and semen grouping so that more useful information may be given to the Courts.

Cytogenetics

The work continues markedly to increase. Valuable technical experience was obtained in antenatal cytogenetics by the receipt of 30 "practice" amniotic fluid samples obtained from a maternity hospital. Later 25 diagnostic samples were also successfully cultured and processed: among these, two chromosome abnormalities were detected, one having the karyotype of a female mongol and the other that of a klinefelter abnormality. This investigation of the use of amniotic fluid cultures in certain metabolic diseases is being extended at the request of workers in other hospitals in Perth.

During an overseas trip, the cytogenetics physician attended an international conference in Vienna on human chromosomes, and later visited the M.R.C. Genetics unit under the charge of Dr. C. O. Carter in the Institute of Child Health in London. Also in 1972 the senior technologist attended a cytogenetics conference in Melbourne.

Surveys

The Serology Department was involved in six surveys during 1972: these were, in April 35 pre-school Aboriginal children from the South of the State were checked for serological evidence of treponemal disease using the V.D.R.L. and F.T.A. (Absorb) test. Two sera proved reactive with both tests. In June another 29 similar children from the same area were also tested. Two proved reactive to the F.T.A. test only.

Again in June, 220 mixed Aboriginal and Caucasian children from the North-West area were tested serologically by using the V.D.R.L. test. Eighteen were reactive but follow-up tests using W.R. and R.P.C.F. tests were not reactive. In July a further 29 children from the same area were tested and all found to be non-reactive. Also in July, 133 specimens of blood from Aboriginals of various age groups were received from the North West. A V.D.R.L. test was used and 58 were found reactive. In September 48 sera were received from aboriginal children in the North West. Twenty five were found to be reactive with the F.T.A. (Absorb) test. V.D.R.L. tests were done on 41 of the sera and 24 were found reactive. Antistreptolysin and C-reactive protein tests were also done on 41 of the samples with varied results.

IV. BRANCH LABORATORIES

There has been no slackening in the demand for new laboratories in areas opened up in the North West of the State, and in addition laboratories are now needed in areas nearer the capital city. In 1972 one new laboratory was opened 50 miles from Perth and one was opened in a hospital in an outer suburb. In 1973 there will have to be expansion of the latter service and new laboratories have been planned for one smaller town near Perth, with three new laboratories required for expanding areas in the North West.

Table IB of the Appendix lists the work done in the country laboratories during the year under review. With the picking-up of the economy in the country there has been an upsurge in the work done, with the growth rate in 1972 exceeding the growth rate of the work done in the central laboratories in 1972.

Housing and transport continue to be the major facilities necessary to attract staff to the country. The provision of Telex facilities to all isolated branches and frequent visits by staff from the central laboratories may have helped to lessen the feeling of isolation. A further step already mentioned, is the arrangement where staff from country laboratories undergo yearly refresher courses in the central laboratories. This may have contributed to the thoroughly satisfactory results of state-wide quality control results : the country laboratories take part not only in the internal quality control tests, but now also take part in the Burroughs Wellcome control testing.

It would be difficult to over-emphasize the importance of the work done in the country laboratories : without the facilities they provide in isolated areas it would be difficult to attract good medical officers to work in the North West and indeed in all distant parts of the State. As far as possible and as far as justifiable, staff for country laboratories is being increased to cut down the number of one-man laboratories in which the technologist is on duty or on call 24 hours a day, seven days a week. One senior technologist has worked under these conditions in a severe tropical climate for 9 years without complaint.

Liaison continues with the Commonwealth Health Laboratory in Kalgoorlie.

V. RESEARCH

Research without a large amount of routine work very often proves to be sterile, but too much routine work may so load a laboratory that good continued research is not possible. Due to shortage of staff, space and equipment, it is not possible to carry out more than a very limited amount of research and indeed even important developmental work is not satisfactorily implemented. Such research as is being done has to be carried out by individuals often working outside duty hours and it is to their credit that some good work has resulted : the work on Entero-bacteriaceal and the work on grouping of human hairs are especially good.

It is hoped that some possible easing of routine work from the handing over of local teaching hospital laboratory responsibilities in 1973, and with the availability of new buildings in 1973 the situation as regards research may improve.

VI. PUBLICATIONS

The following is a list of papers published by members of the Department during 1972 :—

1. “ Results of 538 Chromosome Studies on Patients referred for Cytogenetic Analysis ” by Marie T. Mulcahy and Joy Jenkyn, *Medical Journal of Australia*, December 9, 1973.
2. “ An Evaluation of Strontium Chloride, Rappaport, and Strontium selenite Enrichment for the Isolation of Salmonellas from man, animals, meat products and Abattoir Effluents.” By J. B. Iveson and E. M. Mackay-Scollay, *Journal of Hygiene, Cambridge*, 1972, Volume 70, pp. 367-384.
3. “ Food Microbiology and the Retailer ” by R. Fergie, *The West Australian Health Surveyor*, Volume 2, No. 1, Nov.-Dec. 1972. This paper was given at the 27th Annual Health Surveyors' Conference in October, 1972.

VII. TEACHING

Teaching continues to be a heavy commitment. It includes teaching at all levels and to assorted groups including nurses, technologists, police, etc. In 1973 at least four of the medical staff will have part-time teaching duties at the University.

VIII. SURVEYS

These also represent a heavy commitment but must be regarded as a legitimate responsibility of a State Health Laboratory Service. In the body of this report mention is made of surveys carried out during the year.

IX. ACKNOWLEDGEMENTS

I am greatly indebted to all laboratory staff, especially country laboratory staff, for their continued good work. As in the past much assistance has been given to us by colleagues in Australia and overseas : earlier in the report special mention has been made of such help.

Table IA

STATE HEALTH CENTRAL LABORATORIES—SUMMARY OF TESTS DONE 1972

	State	Common-wealth	S.C.G.H.	Others	1972 Total	1971 Total	1972 Increase
MICROBIOLOGY—							%
A. Clinical Bacteriology	41,409	3,070	40,213	4,718	89,410	81,084	10·3
B. Waters and Sewerage	14,115	....	....	....	14,115	12,731	10·9
C. Enteric Diseases	26,824	424	824	24	28,096	24,770	13·4
D. Mycobacteria ....	....	28,488	....	....	28,488	27,983	1·8
E. Mycology	16,148	685	7,692	8	24,533	20,885	17·5
F. Virology	225,668	1,047	15,231	92	242,038	196,725	23·0
BIOCHEMISTRY	39,321	6,801	298,015	36,354	380,491	335,441	13·4
HAEMATOLOGY	26,952	5,467	171,613	29,251	233,283	184,753	26·3
SEROLOGY	100,686	3,006	9,576	1,109	114,377	95,035	20·4
RADIOISOTOPE	1,946	913	3,643	3,392	9,894	10,079	*
HISTOPATHOLOGY—							
A. Histopathology and Morbid Anatomy	33,064	1,629	5,834	7,312	47,839	43,093	11·0
B. Cytology	3,052	3,722	4,919	11,287	22,980	20,543	11·9
Total	529,185	55,252	557,560	93,547	1,235,544	1,053,122	17·3

* Excluding the 1,567 Survey tests done in 1971, increase for the routine work is 16·2%

Table IB

STATE HEALTH LABORATORIES—SUMMARY OF TESTS DONE, 1972
IN COUNTRY LABORATORIES

	Total 1972	Total 1971	Increase 1972
			%
Albany	34,208	26,124	30·9
Broome	11,708	10,751	8·9
Bunbury	37,233	36,448	2·2
Busselton	20,280	16,620	22·0
Carnarvon	16,937	19,742	....
Collie	5,843	6,224	....
Derby	38,269	34,874	9·7
Esperance	8,491	7,285	16·6
Geraldton	45,284	37,232	21·6
Kununurra	426	....	Record
			(June–Dec. 1972)
Manjimup	17,360	16,699	4·0
Margaret River/Augusta	4,442	3,262	36·2
Merredin	18,886	12,461	51·6
Narrogin	33,191	24,841	33·6
Northam	21,647	16,315	32·7
Pinjarra	6,830	2,158	More than 3 times
Port Hedland	24,800	22,025	12·6
Wyndham	13,962	12,519	11·5
Total	359,797	305,580	17·7

Table IIA
CLINICAL BACTERIOLOGY—TESTS DONE 1972

	Source				1972 Total	1971 Total	1972 Increase
	State	Common- wealth	S.C.G.H.	Others			
Faeces	1	....	42	....	43	45	....
Blood Specimens	158	3	1,601	1	1,763	1,676	5·2
C.S.F. Specimens	16	1	916	27	960	476	101·7
Foodstuffs	2,152	....	8	....	2,160	3,029	....
Sensitivity tests	4,912	107	5,320	822	11,161	11,087	0·7
Serous effusions	28	10	555	30	623	663	....
Sputum	320	200	8,056	358	8,934	7,516	18·9
Swabs all sources	1,062	160	3,770	712	5,704	4,749	20·1
Urine Examinations	1,777	654	17,919	2,745	23,095	18,966	21·8
All urogenital specimens including rectal swabs for V.D. examinations	26,586	1,690	980	....	29,256	25,762	13·6
Water	198	1	....	....	199	400	....
Others	4,199	244	1,046	23	5,512	6,715	....
Total	41,409	3,070	40,213	4,718	89,410	81,034	10·3

Table IIB
WATER AND SEWERAGE SURVEYS—WORK DONE 1972

	1972 Total	1971 Total	1972 Increase
Water—			%
Drinking	9,063	7,414	22·2
River, ocean	3,220	3,130	2·9
Sewerage	1,832	2,187	....
Total	14,115	12,731	10·9

Table IIC
ENTERIC DISEASE LABORATORY—TESTS DONE 1972

	Source				1972 Total	1971 Total	1972 Increase
	State	Common- wealth	S.C.G.H.	Others			
Antigen and Animal inoculation	4,920	....	....	....	4,920	2,161	127·7
Faeces specimens:	13,438	352	810	16	14,616	14,490	0·9
Foodstuff	2,024	....	....	....	2,024	2,489	....
Fertilisers .....	....	....	....	....	....	8	....
Serum, viruses	1,841	33	14	8	1,896	2,357	....
Others	4,601	39	....	....	4,640	3,265	42·1
Blood specimens .....	....	....	....	....	....	....	....
Sputum .....	....	....	....	....	....	....	....
Total	26,824	424	824	24	28,096	24,770	13·4

Table IID
TUBERCULOSIS SECTION—EXAMINATIONS IN 1972

							1972 Total	1971 Total	1972 Increase
									%
Sputum	....	....	....	....	....	....	20,230	20,723	....
Gastric Contents	....	....	....	....	....	....	581	632	....
Laryngeal Swabs	....	....	....	....	....	....	3	3	....
Pleural Fluids	....	....	....	....	....	....	313	267	17·2
Bronchial Lavage	....	....	....	....	....	....	6	15	....
Cerebral Spinal Fluid	....	....	....	....	....	....	69	47	46·8
Urine	....	....	....	....	....	....	1,989	2,035	....
Miscellaneous	....	....	....	....	....	....	2,086	2,292	....
Confirmation Tests	....	....	....	....	....	....	1,253	878	42·7
Sensitivities	....	....	....	....	....	....	1,111	722	53·9
Virulence Test	....	....	....	....	....	....	556	178	More than 3 times
I.N.A.H. Level	....	....	....	....	....	....	270	175	54·3
Smears for M. Leprae	....	....	....	....	....	....	21	16	31·3
Total	....	....	....	....	....	....	28,488	27,983	1·8

Table IIE
MYCOLOGY—WORK DONE 1972

					Source				1972 Total	1971 Total	1972 Increase
					State	Common-wealth	S.C.G.H.	Others			
											%
Skin, Hair, Nails	....	....	....	....	7,619	418	124	8	8,169	7,542	8·3
Sputum, CSF, Biopsy, P.M., Drainage and Wound Swabs	....	....	....	....	622	18	1,719	....	2,359	1,991	18·5
Swabs, Cervical, Vaginal, Throat, Mouth, Ear	....	....	....	....	6,300	128	5,305	....	11,733	9,191	27·7
Identifications—Candida and Trichophyton	....	....	....	....	937	9	204	....	1,150	879	30·8
Miscellaneous	....	....	....	....	670	112	340	....	1,122	1,282	....
Total	....	....	....	....	16,148	685	7,692	8	24,533	20,885	17·5

Table IIF
VIROLOGY SECTION—TESTS DONE 1972

							Source			1972 Total	1971 Total	1972 Increase
							State	Common-wealth	S.C.G.H.			
												%
Preparation of Inocula	....	....	....	....	....	....	20,905	139	1,347	22,391	20,069	11·6
Tissue Culture	....	....	....	....	....	....	27,128	86	1,648	28,862	24,867	16·1
Egg Inoculation	....	....	....	....	....	....	2,530	....	....	2,530	1,139	122·1
Animal Inoculation	....	....	....	....	....	....	22,043	64	2,112	24,219	31,251	....
Neutralisation	....	....	....	....	....	....	84,580	256	5,828	90,664	55,456	63·5
Haemagglutination	....	....	....	....	....	....	13,305	409	163	13,877	20,393	....
Haemadsorption	....	....	....	....	....	....	9,817	28	892	10,737	7,728	38·9
Complement Fixation	....	....	....	....	....	....	33,568	37	2,661	36,266	25,689	41·2
Others	....	....	....	....	....	....	11,792	28	672	12,492	10,133	23·3
Total	....	....	....	....	....	....	225,668	1,047	15,323	242,038	196,725	23·0

Table III
BIOCHEMISTRY DEPARTMENT—TESTS DONE 1972

	Source				1972 Total	1971 Total	1972 Increase
	State	Common- wealth	S.C.G.H.	Others			
Serum/Plasma Tests	38,865	6,711	293,643	36,001	375,220	331,668	% 13·1
C.S.F. Tests	42	7	1,124	14	1,187	559	112·3
Gastric Contents ....	....	....	7	....	7	7	....
Effusions	11	....	99	2	112	119	....
Urine Examinations	302	58	2,250	244	2,854	2,413	18·3
Metabolic Tests	31	16	565	71	683	456	49·8
Others	70	9	327	22	428	219	95·4
Total	39,321	6,801	298,015	36,354	380,491	335,441	13·4

Table IV
HAEMATOLOGY DEPARTMENT—TESTS DONE 1972

	Source				1972 Total	1971 Total	1972 Increase
	State	Common- wealth	S.C.G.H.	Others			
Red Cells—							%
Total levels	2,547	524	17,073	2,819	22,963	8,939	} 34·4
Haematocrit....	2,547	524	17,073	2,819	22,963	17,897	
Absolute values	7,641	1,572	51,219	8,457	68,889	35,876	
Sedimentation rate	562	307	11,450	466	12,785	15,223	
Film examination	241	152	366	479	1,238	17,927	
Fragility tests	1	....	4	....	5	13
Reticulocytes	27	10	2,085	8	2,130	1,213	
Stipple cells	1	....	2	....	3	1
Hb. levels	2,547	524	17,073	2,865	23,009	18,048	
Platelets	41	44	3,600	60	3,745	2,154	
White Cells—							} 12·9
Total	2,547	524	17,073	2,819	22,963	16,471	
Differential	209	235	10,391	395	11,230	13,792	
Direct Eosinophil count	8	9	671	10	698	741	
LE cells and Latex cells	24	5	501	50	580	416	
Blood Grouping—							} 9·7
A.B.O., Kell	2,163	224	2,096	2,366	6,849	6,472	
Rhesus D	2,155	224	2,096	2,366	6,841	6,472	
Antibody screen, titre and Identification....	2,142	35	2,070	2,416	6,663	6,499	
Compatibility	36	16	6,428	116	6,596	5,022	
Genotype	1	....	2	64	67	183
Paternity grouping	13	....	....	5	18	....
Folic Acid	637	258	526	202	1,623	1,233	31·6
Vitamin B12 Assay	589	254	513	263	1,619	1,100	47·2
Bone Marrow Exams....	15	1	141	12	169	125	35·2
Plasma Viscosity	1	1	1
Clotting Functions—							} 4·4
Bleeding time	2	2	274	5	283	214	
Clotting time	4	3	2,017	3	2,027	1,888	
Prothrombin time	125	13	5,917	37	6,092	5,663	
Kaolin partial thromboplast test ....	....	....	27	....	27	207
Thrombin clotting time and fibrinogen titres	3	....	41	....	44	61
Platelet aggregation test ....	....	....	....	....	Included other coagulin tests	55
Fibrinolysis test ....	....	....	2	....	2	32
Hess test ....	....	....	2	....	....	....
Plasminogen Assay ....	....	....	1	....	1	....
Euloglobulin lysis activity ....	....	....	2	....	2	....
Other Coagulation Tests	88	1	541	3	633	448	41·1
Others	36	6	335	146	523	317	65·0
Total	26,952	5,467	171,613	29,251	233,283	184,753	26·3

Table V

RADIOISOTOPE SECTION—WORK DONE 1972

	Source				1972 Total	1971 Total	1972 Increase
	State	Common- wealth	S.C.G.H.	Others			
							%
Thyroxine T4	478	2,054	801	1,852	5,185	4,467	16·1
Tri-iodothyronine uptake T3	327	1,165	798	1,403	3,693	2,105	75·4
Cyanocobalamin B12	97	212	215	99	623	758	....
Insulin	2	51	74	37	164	*2,724	....
Schilling's Test ... ..	....	20	13	....	33	11	3 times
Red cell Survival and Blood Volume Studies	....	3	4	....	7	12	....
Digoxin Assay	9	137	40	1	187	2	93½ times
Blood loss ... ..	....	1	....	....	1	....	....
Ferrokinetic Study ... ..	....	....	1	....	1	....	....
Total	913	3,643	1,946	3,392	9,894	10,079	....

* Includes 1,567 Busselton Survey Tests.

10,079
— 1,567 Busselton Survey
8,512
16·2 per cent. increase in routine work.

Table VIA

HISTOPATHOLOGY AND MORBID ANATOMY—WORK DONE 1972

	Source				1972 Total	1971 Total	1972 Increase
	State	Common- wealth	S.C.G.H.	Others			
							%
Autopsies—							
Forensic	997	....	....	....	997	1,079	....
Others	9	....	64	....	73	155	....
Sections—							
Autopsy, Forensic	13,110	....	....	....	13,110	14,972	....
Autopsy, Others	237	....	953	....	1,190	2,782	....
Biopsy	7,134	1,626	4,467	7,221	20,448	15,277	33·8
Miscellaneous	1,115	3	135	77	1,330	682	95·0
Special Staining	7,583	....	....	....	7,583	7,692	....
Frozen Sections	1,179	....	215	14	1,408	262	nearly 5½ times
Macro. Sections	147	....	....	....	147	....	....
Immuno Fluorescent Antibodies—							
Smears	620	....	....	....	} 1,553	192	more than 8 times
Tissue Sections	853	....	....	....
Titres	80	....	....	....
Total	33,064	1,629	5,834	7,312	47,839	43,093	11·0

Table VIB

CYTOLOGY—WORK DONE 1972

	Source				1972 Total	1971 Total	1972 Increase
	State	Common- wealth	S.C.G.H.	Others			
							%
Slides	3,052	3,722	4,919	11,287	22,980	20,543	11·9

	1972		1971		Increase 1972	
	No. of Cases	No. of Slides	No. of Cases	No. of Slides	Cases	Slides
					%	%
Lung specimens	4,210	5,779	4,163	5,372	1·1	7·6
Cervical specimens	5,996	14,416	4,997	12,186	20·0	18·3
Other specimens	395	1,443	372	1,308	6·2	10·3
Special slides ....	....	1,342	....	1,677	....	....
Total	10,601	22,980	9,532	20,543	11·2	11·9

Table VII

SEROLOGY DEPARTMENT—TESTS DONE 1972

	Source				1972 Total	1971 Total	1972 Increase
	State	Common- wealth	S.C.G.H.	Others			
							%
Treponemal Tests	66,504	2,374	2,498	51	71,427	55,861	27·9
Gonococcal Tests	7,622	347	219	....	8,188	6,128	33·6
Hydatid Tests	258	2	73	....	333	231	44·2
Bacterial agglutinations	5,450	108	2,486	24	8,068	7,282	10·8
Rheumatic Tests	3,640	29	1,594	647	5,910	5,227	13·1
Leptospiral Tests	1,211	20	309	....	1,540	1,555	....
Viral, Rickettsial and Protozoal Tests	7,258	112	1,872	18	9,260	10,128	....
Hormone Tests	319	2	218	369	908	2,310	....
Medico-Legal Tests	7,574	....	....	....	7,574	5,428	39·5
Chromosome studies	379	....	1	....	380	248	53·2
Others	471	12	306	....	789	637	23·9
Total	100,686	3,006	9,576	1,109	114,377	95,035	20·4

Appendix III

Tuberculosis Control Branch

F. G. B. Edwards, B.A., LL.B.M.B., B.S., F.C.C.P., F.A.C.M.A:
Director

Main Indices

One hundred and fifty-five notifications were received. There were 125 persons with pulmonary and 30 with non pulmonary disease. The incidence of pulmonary cases was 11·9 per 100,000 a slight increase on the rates for 1970 and 1971 (11·5 and 11·0 respectively). These 155 notifications represent the total case load for the year, including as they do a certain number of reactivations (8) and a few patients who were transferred from other States while under treatment (3). When these are excluded, there remain 144 who were diagnosed with new active disease as a result of investigation or referral. This is equivalent to an incidence of new cases of 13·7, the corresponding figure for 1971 being 10·2. There were 116 patients with newly discovered pulmonary disease, giving an incidence of 11·0, as compared with 9·2 in 1971.

Although the 1972 returns show an overall tendency towards slightly increased rates, it must be realised that these figures include a substantial group of patients whose lesions were found to be caused by atypical mycobacteria. Person to person transmission of this type of infection is recognized to be of a low order. In fact, 27 patients with atypical disease were notified during 1972, in contrast to only 9 in the preceding 12 months. This sudden rise is not considered to be of any significance in the light of an average of about 16 cases reported annually in the last decade.

Mortality

Eight deaths were attributed to pulmonary tuberculosis i.e. a rate of 0·8 per 100,000. There were no deaths attributed to non pulmonary disease. Most of the so called tuberculosis deaths are now occurring in older persons who are in fact dying of other conditions, tuberculosis being an associated terminal event.

Reactivations

Only 8 patients were reported with reactivated tuberculosis. This equalled the lowest number ever reported in one year and is ascribed to the effectiveness of primary chemotherapeutic regimes in use since the early 1960's. In recent years nearly all patients whose disease reactivated were originally treated in the 1940's and early 1950's and it is rare for those who have had adequate regimes to relapse.

Tuberculosis in the non-Australian born

Between the 1966 and 1971 censuses, the proportion of non-Australian born persons in the State increased from 23·44 per cent. to 27·49 per cent. 55 per cent. of the 1972 notifications of tuberculosis came from this group. Graph A shows that the curves for the numbers of notifications in the Australian born and non-Australian born groups crossed between 1969 and 1970 ; that is to say, prior to this date the Australian born always produced more notifications, but subsequently the position has been reversed. For 1972 the ratio of cases in both sexes was approximately two to one. (Tables 6 and 7).

Routine x-ray examinations of persons newly arriving in the country as permanent residents were carried out as usual. 7,922 persons were checked, representing 81·9 per cent. of the total arrivals, a considerable reduction in the percentage cover for the previous years. This reduction is attributed to the increasing number of incorrect and insufficient addresses shown on passenger lists and also to a breakdown in the system of distribution of notices at the point of disembarkation. Nevertheless this survey resulted in the discovery of 4 new cases of active disease and 42 persons with inactive lesions were placed on the list for follow-up observation as risk cases.

Mass compulsory community surveys

During the year compulsory surveys were conducted in the following centres :—

Peppermint Grove	Irwin	Leonora
Cottesloe	Greenough	Laverton
Claremont	Chapman Valley	Ravensthorpe
Nedlands	Geraldton	Esperance
Subiaco	Northampton	Dundas
City of Perth (N. of River)	Mullewa	Coolgardie
Three Springs	Menzies	Boulder
Mingenew		Kalgoorlie

A total of 66,571 persons of 25 years of age and over were x-rayed, the yield of active tuberculosis being 0·23 per 1,000 films, a slight rise on the previous year's yield. Even so only 13·2 per cent. of new cases of pulmonary tuberculosis detected in 1972 were attributed to mass compulsory surveys. This represented a decrease of 1·1 per cent as compared with the percentage figure for 1971.

In December a complete review of the tuberculosis figures for the last 20 years was carried out, with particular reference to the necessity for continuation of compulsory surveys on a community basis.

The first compulsory chest x-ray survey planned on a community wide basis was begun in the Eastern Goldfields Area in July, 1952. In the 20 years since then, 1,043 cases of infectious pulmonary tuberculosis were discovered throughout the State by this means. These 1,043 patients represented a fifth of all notifications of pulmonary tuberculosis (5,132) diagnosed in the same period. There is little doubt that such surveys have played an important part in the reduction of tuberculosis prevalence. Additional benefits have resulted from the earlier diagnosis of other chest conditions such as heart disease, pneumonia and lung cancer.

In the 20 years the adult population was surveyed approximately 5 times and nearly 1,500,000 miniature films were taken. At their inception, surveys were made compulsory for persons of 16 years of age and over, but in succeeding years, with the declining incidence amongst the young, the lower age limit was from time to time raised and from 1966 onwards only the 25 years and over age group were x-rayed on a compulsory basis. Initially a survey of all adults took 3 to 4 years to complete. More recently this required 5 years or more.

Tuberculosis patients have been derived from 4 main sources :—

1. Through the activity of chest clinics conducted by the Tuberculosis Branch. These cases have been found as a result of diagnostic activity amongst patients who have in the main been regular clinic attenders or volunteers.
2. As a result of the regular recurring mass compulsory community surveys.
3. From general hospitals.
4. Through the activities of private medical practitioners.

Graph B shows that in 1955 chest clinics were responsible for diagnosing 195 patients (47·1 per cent of the total). By 1972 this had fallen to 60, but this figure still represented 49·6 per cent. of the total notifications for the year. The flattening of the graph in recent years suggest that for the future any early marked reduction in the numbers derived from this source is unlikely.

Graph B shows also that cases detected through compulsory surveys reached a maximum of 152 in 1956, i.e. 35·85 per cent of all notifications. By 1972 this had fallen to 17 or 14·05 per cent., the average yield since 1968 having been only 14·5 per cent. Regarded from another point of view, in the early stages of the campaign 1 case was found in every 714 miniature x-rays ; by 1964 this required 2,000 films, in 1968 3,300 and in 1972 4,270.

Throughout the 20 year period there was a steady flow of 40 to 50 cases annually from general hospitals (Graph C) and there is no reason why this should not continue.

In the early stages of the campaign private practitioners referred about 50 tuberculosis cases annually but since 1963 the yield from this source was of the same order as that from compulsory surveys i.e. 10 to 20 cases. However unlike the survey cases detection required a relatively small outlay in expenditure and effort.

The reasons for the lower yield from compulsory surveys in more recent years are threefold. Firstly repetitive surveys have gradually removed from the community that type of tuberculosis case which is largely discoverable by this particular method, i.e. those with chronic low grade infections. Patients with more acute rapidly developing tuberculosis are usually diagnosed in general hospitals, as a result of voluntary attendance at chest clinics or by private practitioners. Secondly the chest clinics have as a result of long experience been able to define and list a substantial proportion of those persons in the community who although not at present suffering from tuberculosis are for one reason or another at relatively higher risk of developing the disease. These individuals have been required to attend for annual review and as such have been excused from attendance for compulsory survey. Thirdly it was found that tuberculosis tended more and more to occur amongst “inaccessible defaulters”, i.e. persons who having neglected to attend the mass x-ray unit were not available for recall since their names were absent from the electoral rolls which formed the basis of recall. In such instances diagnosis was usually delayed until the patient was forced by his developing symptoms to attend a chest clinic, general hospital or a private medical practitioner for treatment.

The chief objection to the suspension of general compulsory surveys stems from the inevitable delay in diagnosis in patients with pre-symptomatic tuberculosis or with symptoms insufficiently troublesome to force them to seek medical advice. A minor objection is the loss of the benefits of earlier diagnosis in non-tuberculous conditions.

Despite these disadvantages it was considered that the tuberculosis campaign would not suffer substantially by the suspension of surveys for an observation period.

It was therefore decided :—

1. That regular recurring compulsory chest x-ray surveys for the detection of tuberculosis be suspended as from January, 1973.
2. That for the time being compulsory surveys should be used only in the event of a high incidence outbreak in a particular population group.
3. That a further review of the situation be made after an observation period of 5 years.
4. That the tuberculosis campaign in the State continue to be actively pursued by search for cases amongst chest clinic, hospital and private practitioner's patients and by other available means.

Bacteriology, drug resistant organisms

The Mycobacteria Laboratory, Microbiology Division, State Health Laboratory Services continued to provide an excellent service which has proved invaluable in the diagnosis and treatment of cases of infection with *m. tuberculosis* and the various atypical mycobacteria.

Seventy three per cent. of patients who were notified had their disease confirmed by bacteriological culture and identification. 21 of the strains identified as *m. tuberculosis* showed primary resistance to streptomycin but resistance to other drugs was reported in a few cases only. Primary streptomycin resistance has been a persistent feature for some years. It occurs in strains isolated from patients born in Australia as well as those originating from countries where resistant strains are known to be present. In Australian born patients it is possibly related to the previous use of streptomycin in the treatment of other conditions such as nonspecific urinary or respiratory infections. Secondary resistance in treated patients on the other hand has become almost rare.

Persistent isolations of mycobacteria in treated patients is now encountered only in atypical infections. At the end of 1972, 9 patients in this category had remained bacteriologically positive for 12 months or more.

Drugs

Rifampicin has become firmly established as an excellent anti-tuberculosis drug and in primary treatment may be used in conjunction with two other main drugs i.e. streptomycin, isoniazid or ethambutol. Its use in intermittent therapy is approached with some caution. Probably the commonest regime employed in 1972 consisted of an initial 3 months daily treatment with streptomycin, isoniazid and ethambutol, with rifampicin substituted for streptomycin in older patients or those intolerant of streptomycin; this was followed by an extended 2 drug daily regime such as isoniazid and ethambutol, isoniazid and rifampicin. The high cost of regimens which included rifampicin or ethambutol demanded close supervision whether treatment was proceeding in hospital or in the home, in order to obviate waste and side effects deriving from rifampicin intermittency.

As far as patients with atypical disease are concerned, the commonly experienced failure of anti-tuberculosis drug treatment has led to a tendency to shorten courses especially in those patients who show little evidence of initial response. Nevertheless satisfactory response is common in patients with infections due to *m. kansasii*.

Hospitalisation and outpatient management

Of the 55 beds at present available in the Sir Charles Gairdner Hospital for the treatment of tuberculosis, an average of 28.06 was occupied during 1972, allowing the use of the remaining beds for other chest conditions.

Of the 236 patients who at the end of 1972 were continuing with drug treatment after discharge from hospital, 20 were taking their drugs under direct supervision, either at a chest clinic or in the home.

Summary

The incidence of mycobacterial disease showed a slight rise in 1972. This was due to an increase in atypical infections. Reactivations were reported less frequently, reflecting the improvement in treatment and management of patients over a 15 year period. There was a further rise in the percentage of disease found amongst the non-Australian born. As a result of the reduced yield of cases from mass compulsory surveys, their use on a continuing basis was suspended for a 5 year observation period. Nevertheless the search for cases from other sources will be actively pursued, as before.

Table 1

TUBERCULOSIS—MAIN STATISTICAL FIGURES

Year	Mean Popu- lation 1,000s	Notifications				No. on Register (Pulm.) at 31st Dec.	No. on Register per 100,000 (Pulm.)	Number Receiv- ing T.B. Allow- ance at 31st Dec.	Deaths			Death Rate per 100,000	
		Pulm. (incl. Pleural effus.)	Non- Pulm.	Total	Pulm. per 100,000				Pulm.	Non- Pulm.	Total	Pulm.	All Forms
1950	558	586	18	604	104·8	2,100	376	515	125	3	128	22·4	22·9
1951	580	467	37	504	80·4	2,402	413	474	76	6	82	13·1	14·1
1952	601	508	49	557	84·5	2,574	428	396	75	7	82	12·5	13·6
1953	621	378	34	412	60·6	2,762	445	361	43	3	46	6·9	7·4
1954	640	348	34	382	54·3	2,769	432	326	57	4	61	8·9	9·5
1955	659	413	39	452	62·7	2,965	450	330	31	2	33	4·7	5·0
1956	677	424	44	468	62·6	2,900	428	264	43	3	46	6·3	6·8
1957	692	332	32	364	47·9	2,786	403	198	36	1	37	5·2	5·3
1958	706	355	24	379	50·3	2,726	386	213	22	4	26	3·1	3·4
1959	726	320	34	354	44·1	2,684	369	182	24	....	24	3·3	3·3
1960	731	296	34	330	40·5	2,388	327	148	29	1	30	4·0	4·1
1961	737	209	41	250	28·4	1,349	183	89	18	1	19	2·4	2·6
1962	755	243	25	268	32·2	1,333	177	90	24	4	28	3·2	3·7
1963	773	216	28	244	27·9	1,218	158	92	13	....	13	1·7	1·7
1964	790	176	32	208	22·3	1,221	154	88	20	....	20	2·5	2·5
1965	806	153	25	178	19·0	919	114	65	12	....	12	1·5	1·5
1966	836	134	36	170	16·0	840	100	64	16	....	16	1·9	1·9
1967	877	137	34	171	15·6	814	93	54	9	....	9	1·0	1·0
1968	910	145	37	182	15·9	680	75	44	8	1	9	0·9	1·0
1969	947	133	27	160	14·0	659	70	43	8	....	8	0·8	0·8
1970	983	113	35	148	11·5	653	67	32	10	....	10	1·0	1·0
1971	1,029	113	30	143	11·0	625	61	27	17	2	19	1·6	1·8
1972	1,053	125	30	155	11·9	569	54	40	8	....	8	0·8	0·8

Table 2

ANNUAL NOTIFICATIONS OF PULMONARY TUBERCULOSIS SHOWING STAGE OF DISEASE *

Year	Parenchymal Disease						Pleural Effusion		Total	
	Minimal		Moderately Advanced		Advanced					
		%		%		%		%		
1952	122	24·0	275	54·1	101	19·9	10	2·0	508
1953	98	25·9	210	55·5	65	17·2	5	1·4	378
1954	96	27·6	178	51·1	74	21·3	....	....	348
1955	111	26·9	225	54·5	64	15·5	13	3·1	413
1956	127	38·0	217	51·1	72	17·0	8	1·9	424
1957	102	30·7	163	49·1	61	18·4	6	1·8	332
1958	91	25·6	187	52·7	72	20·3	5	1·4	355
1959	103	32·2	151	47·2	55	17·2	11	3·4	320
1960	89	30·1	144	48·6	49	16·6	14	4·7	296
1961	90	43·1	73	34·9	34	16·3	12	5·7	209
1962	117	48·1	84	34·6	36	14·8	6	2·5	243
1963	99	45·8	89	41·2	26	12·0	2	1·0	216
1964	71	40·3	81	46·0	23	13·1	1	0·6	176
1965	75	49·0	60	39·2	17	11·1	1	0·7	153
1966	59	44·0	54	40·3	18	13·4	3	2·2	134
1967	56	40·9	59	43·1	20	14·6	2	1·4	137
1968	71	48·9	59	40·7	11	7·6	4	2·8	145
1969	57	42·9	62	46·6	13	9·8	1	0·7	133
1970	51	45·1	47	41·6	10	8·9	5	4·4	113
1971	42	37·2	52	46·0	17	15·0	2	1·8	113
1972	51	40·8	50	40·0	20	16·0	4	3·2	125

*Classified according to Diagnostic Standards N.T.A.

Table 3
TUBERCULOSIS NOTIFICATIONS FOR YEAR ENDED 31st DECEMBER, 1972
Showing Age, Sex, Form and Stage of Disease

Age Group	Males					Females					Persons					Total
	Pulmonary			Non. Pulm.	Pleur. Effus.	Pulmonary			Non. Pulm.	Pleur. Effus.	Pulmonary			Non. Pulm.	Pleur. Effus.	
	Min.	Mod. Adv.	Adv.			Min.	Mod. Adv.	Adv.			Min.	Mod. Adv.	Adv.			
0- 4	1*	....	....	5	....	....	....	....	7	....	1*	....	....	12	....	13
5- 9	1*	....	....	1	....	....	....	....	1	....	1*	....	....	2	....	3
10-14	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	1
15-19	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
20-24	....	....	....	....	1	3	....	....	2	1	3	....	....	2	2	7
25-29	3	2	1	....	....	....	1	1	....	....	3	3	2	....	....	8
30-34	....	1	1	....	....	2	2	....	....	....	2	3	1	....	....	6
35-39	1	3	1	3	....	2	1	....	....	....	3	4	1	3	....	11
40-44	3	1	2	1	....	....	....	....	1	....	3	1	2	2	....	8
45-49	6	5	1	2	....	1	1	....	1	1	7	6	1	3	1	18
50-54	2	4	5	1	....	3	2	2	1	....	5	6	7	2	....	20
55-59	5	9	....	1	....	1	....	....	....	....	6	9	....	1	....	16
60-64	2	4	1	....	....	1	....	....	....	....	3	4	1	....	....	8
65-69	2	3	....	....	....	2	1	....	1	....	4	4	....	1	....	9
70-74	3	4	2	....	1	2	1	1	1	....	5	5	3	1	1	15
75 and over	2	5	1	....	....	3	....	1	....	....	5	5	2	....	....	12
Total	31	41	15	14	2	20	9	5	16	2	51	50	20	30	4	155

* Primary Case.

Table 4
REACTIVATIONS

Previous Treatment	Number of Reactivations									Total
	1964	1965	1966	1967	1968	1969	1970	1971	1972	
(1) No chemotherapy	8	6	5	4	4	7	2	6	4	46
(2) Inadequate chemotherapy—										
Without Surgery	13	5	13	5	4	11	6	5	3	65
With Surgery	5	2	1	4	1	....	....	....	....	13
(3) Apparently adequate chemo-										
therapy ....	....	2	....	....	....	2	3	1	1	9
Total	26	15	19	13	9	20	11	12	8	133

Table 5
ANALYSIS OF REGISTER AS AT 31st DECEMBER, 1972
A. Pulmonary Tuberculosis
(excluding Pleural Effusions)

Activity								Number on Register According to Original Extent of Lesions			Total
								Minimal	Moderate	Advanced	
Active	....	....	....	....	....	....	....	68	88	25	181
Inactive—											
0-1 year	....	....	....	....	....	....	....	36	32	4	72
1-2 years	....	....	....	....	....	....	....	28	20	3	51
2-3 years	....	....	....	....	....	....	....	22	45	3	70
3-4 years	....	....	....	....	....	....	....	45	28	3	76
4-5 years	....	....	....	....	....	....	....	30	28	8	66
5+ years	....	....	....	....	....	....	....	18	14	7	39
								247	255	53	555
B. Pleural Effusion								....	....	14	
C. Non-Pulmonary Tuberculosis								....	....	175	
Total All Forms								....	....	744	

Table 6

WESTERN AUSTRALIA : TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH, 1962-1972 : MALES

Country of Birth	Population at 30th June, 1971 Thousands (Census)	Incidence per Thousand Persons											Total Notifica- tions 1962-1972
		1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	
U.K. and Republic of													
Ireland	82.2	0.93	0.66	0.67	0.61	0.59	0.53	0.36	0.33	0.51	0.31	0.23	325
Germany	3.6	0.37	....	....	....	0.75	....	0.34	0.34	0.34	0.69	0.56	12
Greece	2.7	0.87	0.43	....	....	....	0.65	0.32	0.32	0.32	....	1.11	13
Italy	17.1	0.91	0.70	0.60	0.47	0.20	0.50	0.25	0.44	0.37	0.44	0.41	98
Netherlands	6.2	0.64	0.31	....	0.16	0.16	0.17	0.17	....	....	0.17	0.16	14
Poland	2.8	0.33	1.85	1.07	....	0.71	1.43	1.78	0.71	....	0.36	1.07	33
Yugoslavia	6.2	1.08	1.58	1.11	1.11	1.94	0.43	0.87	2.00	0.65	0.43	0.16	51
Other European	8.6	1.05	0.70	1.05	0.70	1.40	1.08	0.77	1.23	0.92	....	0.05	63
Other Birthplaces	23.8	1.09	1.19	0.74	1.23	0.61	0.68	1.52	0.51	1.27	0.93	0.67	121
Total non-Austral- ian born	153.2	0.89	0.74	0.64	0.58	0.59	0.56	0.54	0.49	0.55	0.38	0.48	730
Australian-born	375.9	0.37	0.34	0.31	0.22	0.26	0.20	0.19	0.15	0.12	0.12	0.22	839

Table 7

WESTERN AUSTRALIA : TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH, 1962-1972 : FEMALES

Country of Birth	Population at June 30, 1971 Thousands (Census)	Incidence per Thousand Persons											Total Notifica- tions 1962-1972
		1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	
U.K. and Republic of													
Ireland	74.8	0.29	0.31	0.26	0.36	0.15	0.18	0.18	0.12	0.14	0.20	0.16	115
Germany	3.5	....	0.34	....	....	0.34	....	....	....	0.33	0.33	....	5
Greece	2.3	0.52	0.50	1.11	....	...	0.43	....	0.43	....	....	0.43	8
Italy	13.4	0.27	0.26	0.09	0.58	0.29	0.08	0.08	0.33	0.08	0.41	0.15	37
Netherlands	5.0	0.39	....	....	....	....	....	....	....	....	0.22	...	3
Poland	2.0	0.56	....	2.10	....	....	....	1.00	2.00	....	1.00	0.50	15
Yugoslavia	3.9	1.67	1.60	....	0.43	....	0.34	....	....	....	0.34	0.51	13
Other European	5.9	0.73	....	0.25	0.75	0.75	0.68	0.45	0.68	0.45	....	0.68	27
Other Birthplaces	19.3	0.29	0.14	0.45	0.15	0.15	0.20	0.82	0.51	0.61	1.33	0.47	54
Total non-Austral- ian born	130.1	0.36	0.29	0.28	0.34	0.19	0.19	0.24	0.25	0.19	0.37	0.21	277
Australian-born	371.3	0.16	0.13	0.14	0.12	0.09	0.08	0.12	0.11	0.11	0.09	0.11	412

Table 8

PATIENTS FROM WHOM ATYPICAL MYCOBACTERIA WERE ISOLATED (FOR THE FIRST TIME) IN 1972

Type					Casual Isolations	Persistent Isolations			Total	
						Atypical Tuberculosis				
						Pulm.	Non-Pulm.	Total		
M. kansasii	....	....	....	....	....	2	....	2	2
Scotochromogens	....	....	....	....	3	1	3	4	7
M. intracellulare	....	....	....	....	51	12	8	20	71
Rapid growers	....	....	....	....	9	1	....	1	10
Total Patients					63	16	11	27	90

Table 9

MYCOBACTERIAL DISEASE OF LYMPH NODES IN CHILDREN

Year					M. intra-cellulare Identified	Scoto-chromogenic mycobacteria Identified	M. TB (Human) Identified	Cultures Negative	Total Cases
1961	....	....	....	....	....	1	....	1	2
1962	....	....	....	....	3	2	....	2	7
1963	....	....	....	....	....	3	....	8	11
1964	....	....	....	....	....	3	1	4	8
1965	....	....	....	....	....	1	....	5	6
1966	....	....	....	....	2	6	....	7	15
1967	....	....	....	....	1	3	....	9	13
1968	....	....	....	....	2	9	....	5	16
1969	....	....	....	....	1	5	....	5	11
1970	....	....	....	....	3	2	....	5	10
1971	....	....	....	....	....	3	....	3	6
1972	....	....	....	....	3	7	....	5	15
Total number of children					15	45	1	59	120

Table 10

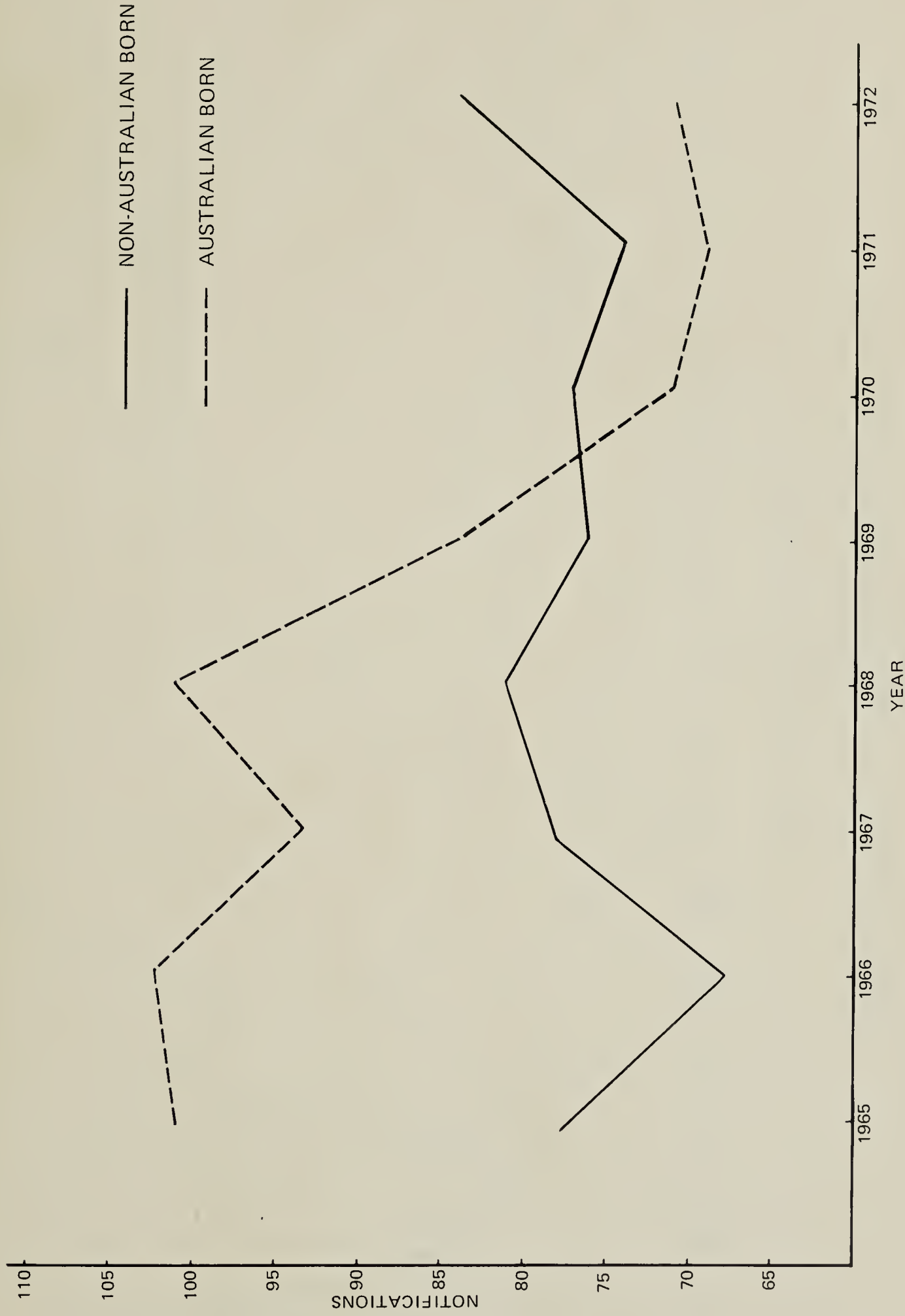
PATIENTS NOTIFIED WITH ATYPICAL TUBERCULOSIS
(including reactivations)

Year	M. kan-sasii	Scotochromogens				M. intracellulare				Rapid growers
	Pulm.	Pulm.	Lymph nodes	Other	Total	Pulm.	Lymph nodes	Other	Total	Pulm.
1955	....	....	....	....	....	1	....	....	1	....
1956	....	....	....	....	....	1	....	....	1	....
1957	....	....	....	....	....	1	....	....	1	....
1958	....	....	....	....	....	4	1	....	5	....
1959	....	....	....	....	....	10	2	....	12	....
1960	....	1	....	....	1	11	1	....	12	1
1961	....	2	....	....	2	11	1	....	12	....
1962	....	1	3	....	4	8	2	....	10	....
1963	....	3	....	....	3	17	3	....	20	....
1964	....	6	....	....	6	14	3	....	17	....
1965	2	2	....	....	2	13	1	....	14	....
1966	2	3	2	....	5	7	6	....	13	....
1967	1	4	1	....	5	6	3	....	9	....
1968	...	6	2	1	9	5	9	....	14	....
1969	1	....	1	....	1	10	5	....	15	....
1970	3	2	3	....	5	11	3	....	14	....
1971	....	1	....	....	1	5	3	....	8	....
1972	2	1	3	....	4	12	7	1	20	1
Total	11	32	15	1	48	147	50	1	198	2

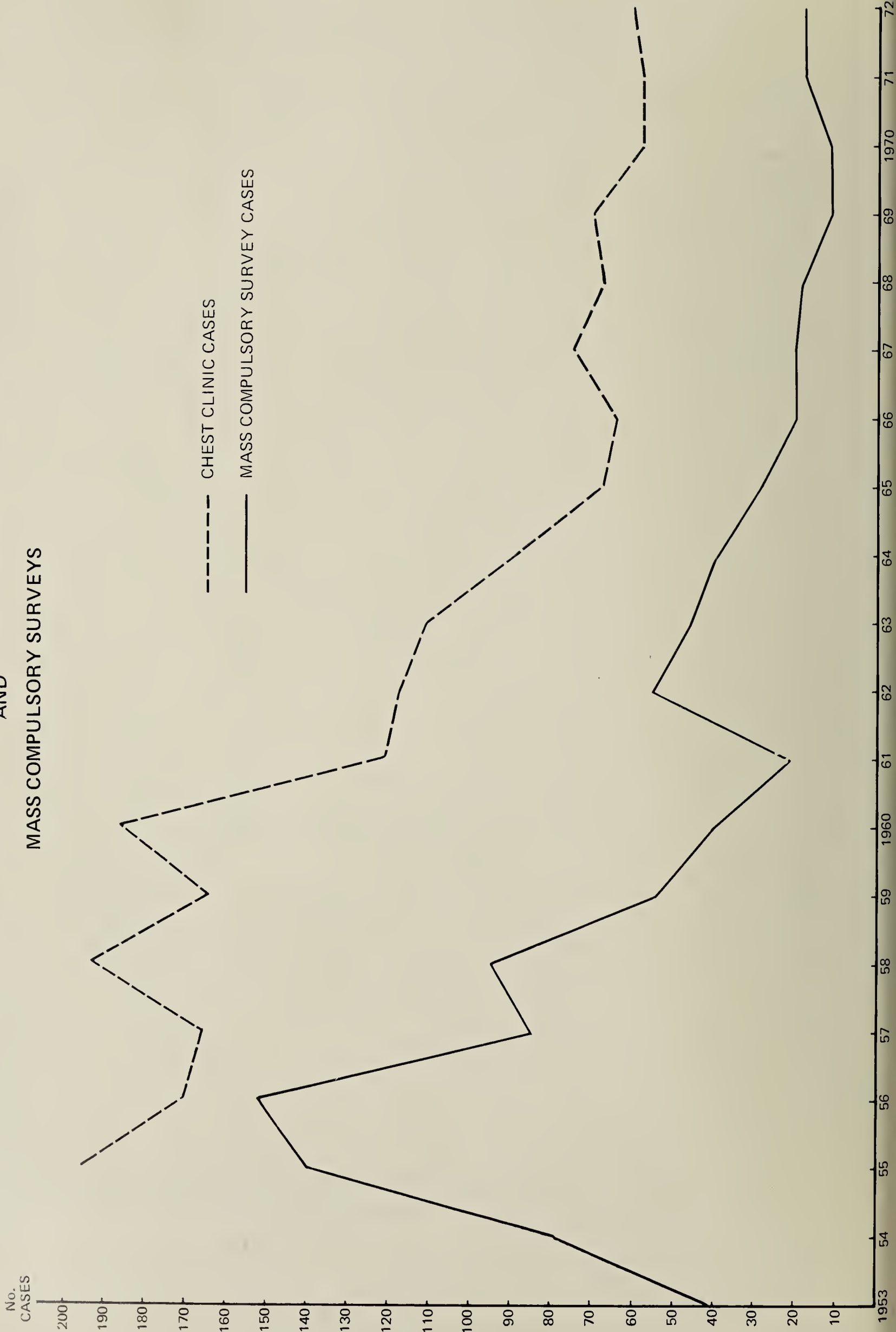
Plus : Two patients with mixed pulmonary disease, in 1963 and 1970.

WESTERN AUSTRALIA : TUBERCULOSIS NOTIFICATIONS

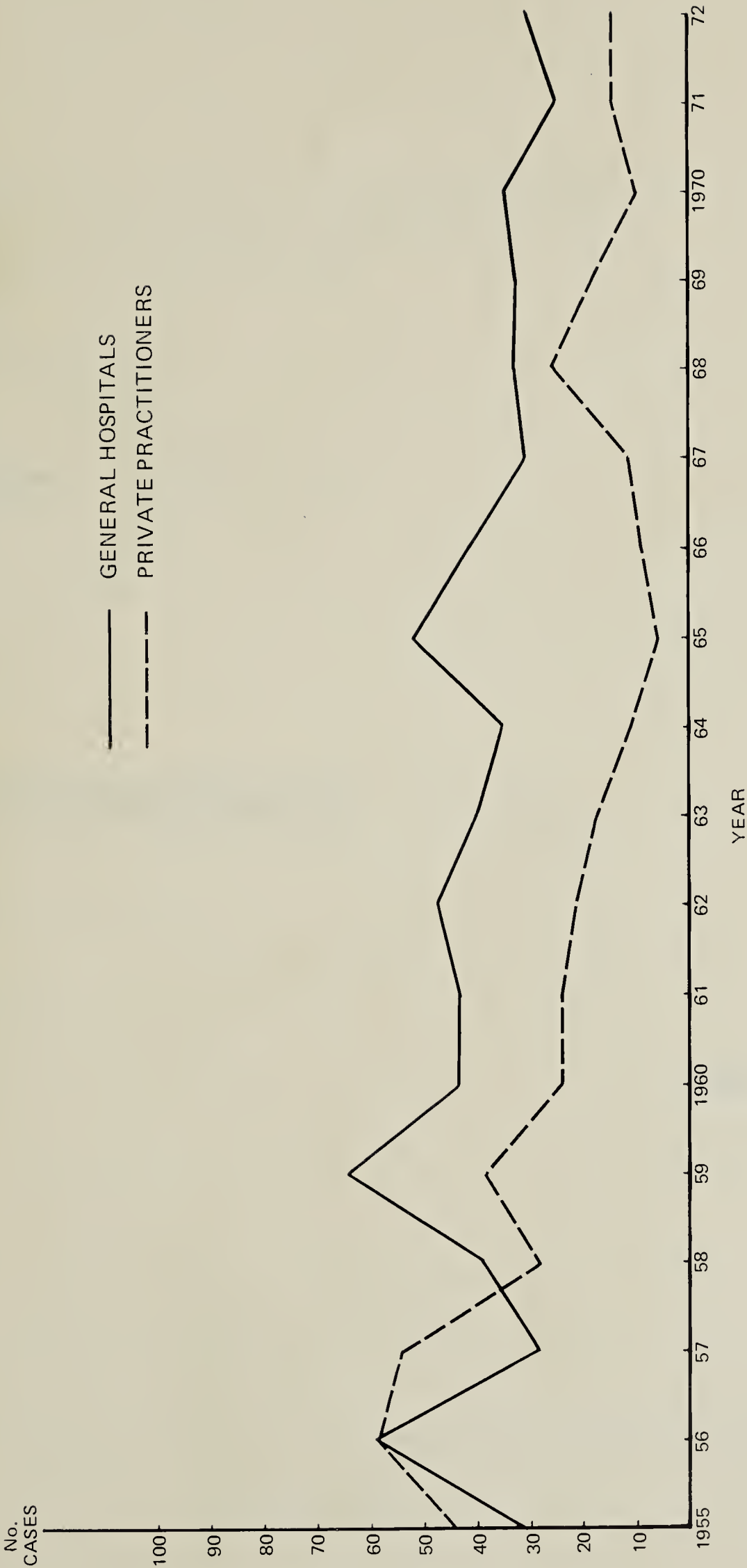
1965 — 1972



GRAPH B
No. PULMONARY T.B. CASES DIAGNOSED BY CHEST CLINICS
AND
MASS COMPULSORY SURVEYS



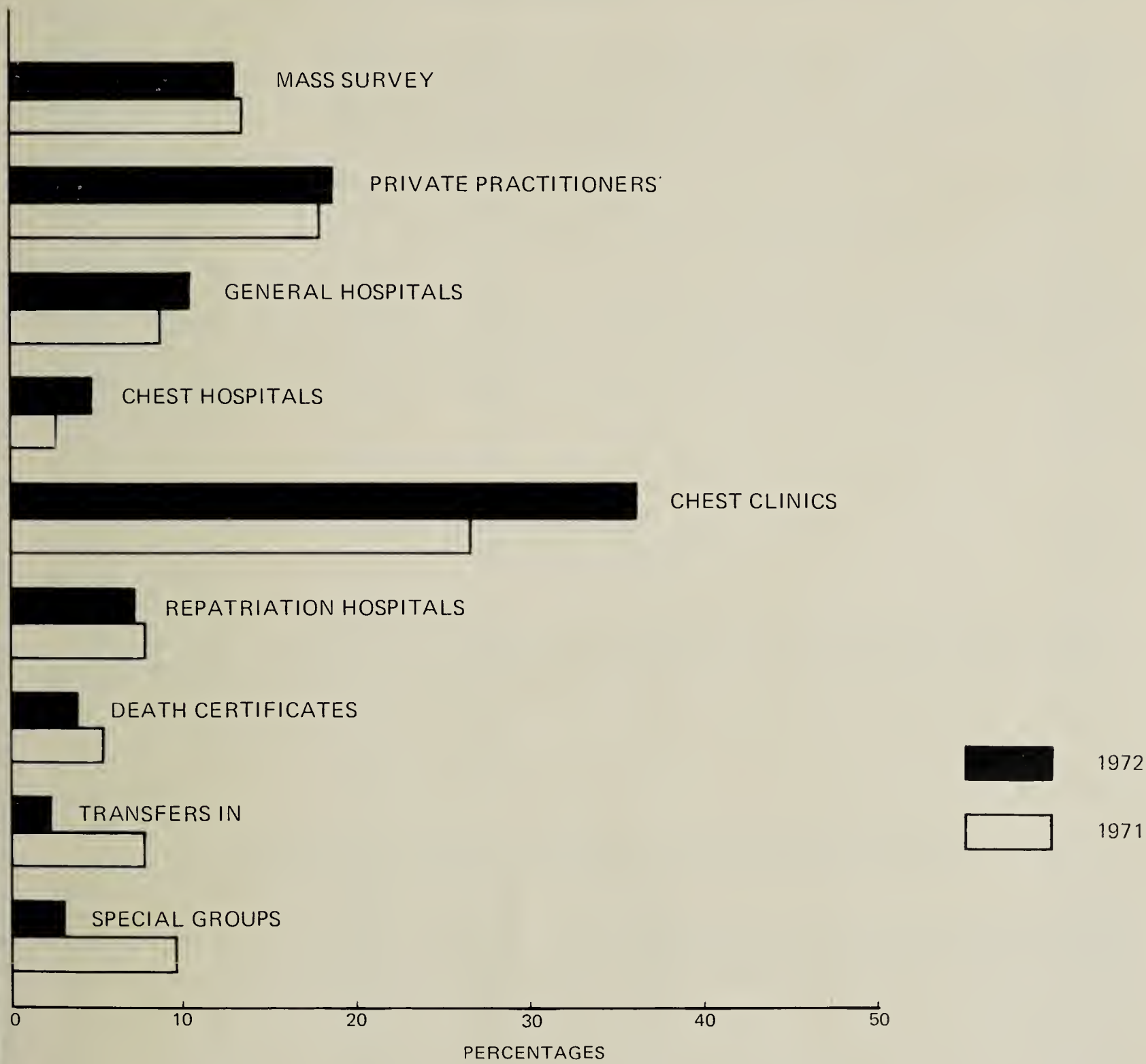
GRAPH C
PULMONARY T.B. CASES NOTIFIED BY
1. GENERAL HOSPITALS
2. PRIVATE MEDICAL PRACTITIONERS



GRAPH SHOWING THE INCIDENCE PER 1,000 IN AGE GROUPS
FOR PULMONARY TUBERCULOSIS IN 1972



GRAPH SHOWING THE SOURCE OF NOTIFICATION OF CASES OF
PULMONARY TUBERCULOSIS AS A PERCENTAGE OF TOTAL
NOTIFICATIONS



Appendix
Western Australia
Pulmonary Tuberculosis

Year							Population in 1,000s	Notifications Received	Incidence Rate per 100,000 Population	Deaths Registered	Mortality Rate per 100,000 Population
1911	....	....	....	....	....	....	287	259	90·2	190	66·2
1912	....	....	....	....	....	....	301	429	142·5	220	73·1
1913	....	....	....	....	....	....	313	424	135·5	206	65·8
1914	....	....	....	....	....	....	323	353	109·3	229	70·9
1915	....	....	....	....	....	....	321	336	104·7	233	72·6
1916	....	....	....	....	....	....	313	511	163·5	225	71·9
1917	....	....	....	....	....	....	306	464	151·6	217	70·9
1918	....	....	....	....	....	....	308	432	140·5	245	79·5
1919	....	....	....	....	....	....	320	467	145·9	289	91·6
1920	....	....	....	....	....	....	330	442	139·9	259	78·4
1921	....	....	....	....	....	....	334	424	126·9	277	82·9
1922	....	....	....	....	....	....	341	387	113·8	256	75·1
1923	....	....	....	....	....	....	351	361	102·8	216	61·5
1924	....	....	....	....	....	....	363	381	104·6	228	62·8
1925	....	....	....	....	....	....	373	403	108·4	259	69·4
1926	....	....	....	....	....	....	381	415	108·2	252	66·1
1927	....	....	....	....	....	....	392	409	104·3	231	56·4
1928	....	....	....	....	....	....	408	395	96·8	282	69·1
1929	....	....	....	....	....	....	421	400	95·0	245	53·4
1930	....	....	....	....	....	....	429	569	132·6	218	50·8
1931	....	....	....	....	....	....	432	372	86·1	223	51·6
1932	....	....	....	....	....	....	435	339	77·9	203	46·7
1933	....	....	....	....	....	....	439	295	67·2	207	47·2
1934	....	....	....	....	....	....	442	287	64·9	218	49·3
1935	....	....	....	....	....	....	447	270	60·4	210	47·0
1936	....	....	....	....	....	....	452	338	74·8	193	42·7
1937	....	....	....	....	....	....	457	239	53·0	172	37·6
1938	....	....	....	....	....	....	464	247	53·2	177	38·1
1939	....	....	....	....	....	....	470	202	43·0	179	38·1
1940	....	....	....	....	....	....	473	231	48·8	181	38·3
1941	....	....	....	....	....	....	474	154	32·5	185	39·0
1942	....	....	....	....	....	....	477	113	23·7	175	36·7
1943	....	....	....	....	....	....	477	273	57·3	144	30·2
1944	....	....	....	....	....	....	481	219	45·4	134	27·9
1945	....	....	....	....	....	....	488	271	55·5	149	30·5
1946	....	....	....	....	....	....	493	343	69·6	163	33·1
1947	....	....	....	....	....	....	502	372	74·0	128	25·4
1948	....	....	....	....	....	....	515	325	63·1	157	30·5
1949	....	....	....	....	....	....	533	499	93·6	123	23·1
1950	....	....	....	....	....	....	558	586	104·8	129	23·1

DEATH CLASSIFICATIONS ACCORDING TO 6th (1948) INTERNATIONAL LIST

1950	....	....	....	....	....	....	558	586	104·8	125	22·4
1951	....	....	....	....	....	....	580	467	80·4	76	13·1
1952	....	....	....	....	....	....	601	508	84·5	75	12·5
1953	....	....	....	....	....	....	621	378	60·6	43	6·9
1954	....	....	....	....	....	....	640	348	54·3	57	8·9
1955	....	....	....	....	....	....	659	413	62·7	31	4·7
1956	....	....	....	....	....	....	677	424	62·6	43	6·3
1957	....	....	....	....	....	....	692	332	47·9	36	5·2
1958	....	....	....	....	....	....	706	355	50·3	22	3·1
1959	....	....	....	....	....	....	726	320	44·1	24	3·3
1960	....	....	....	....	....	....	731	296	40·5	29	4·0
1961	....	....	....	....	....	....	737	209	28·4	18	2·4
1962	....	....	....	....	....	....	755	243	32·2	24	3·2
1963	....	....	....	....	....	....	773	216	27·9	13	1·7
1964	....	....	....	....	....	....	790	176	22·3	20	2·5
1965	....	....	....	....	....	....	806	153	19·0	12	1·5
1966	....	....	....	....	....	....	836	134	16·0	16	1·9
1967	....	....	....	....	....	....	877	137	15·6	9	1·0
1968	....	....	....	....	....	....	910	145	15·9	8	0·9
1969	....	....	....	....	....	....	947	133	14·0	8	0·8
1970	....	....	....	....	....	....	983	113	11·5	10	1·0
1971	....	....	....	....	....	....	1,029	113	11·0	17	1·6
1972	....	....	....	....	....	....	1,053	125	11·9	8	0·8

Appendix IV

Epidemiology and Special Services

Dr. R. Allen, M.B., B.S., Senior Medical Officer

During 1972 there was a decrease in the notifications of almost all infectious diseases. Even among the intestinal group of diseases which showed a considerable increase in 1971, the icteric form of infective hepatitis dropped by 44·3 per cent. to 162, salmonella infections by 45·1 per cent. to 123, and bacillary dysentery showed a further slight decrease of 2·7 per cent. to 145.

Four suspected cases of poliomyelitis were notified during the year. However one case contracted the disease in India three months before migrating to Western Australia, and in the other three the diagnosis is in doubt and under review by the Expert Committee of the National Health and Medical Research Council.

During the year several well attended Tetanus Toxoid Clinics were conducted at a metropolitan abattoir. In all, 1,162 injections were administered.

A trial immunisation clinic was also held at the University in conjunction with the Student Health Service. Sabin Vaccine or Tetanus Toxoid were administered to 764 persons, and the success of this Clinic has led to suggestions that it should become a regular bi-annual event, as the age group involved is generally poorly protected against tetanus.

IMMUNISATION

Poliomyelitis

93,250 doses of Sabin Oral Poliomyelitis Vaccine were administered during 1972, making a total of 1,162,523 doses since the introduction of the vaccine in June 1967.

Other Diseases

42,203 injections against diseases other than poliomyelitis were given during the year—almost the same figure as in 1971 (42,254).

The rubella vaccination campaign was continued in 1972 among first year high school girls. 7,467 girls received the vaccination, representing an acceptance rate of 75·4 per cent.

MALARIA

Investigations were carried out in all fourteen cases of malaria notified during the year. Two cases originated from New Guinea, Portuguese Timor and Macedonia, and one case each from Manus Island, Indonesia, Sarawak, East Africa, Upper Volta, Malaya, Ceylon (Sri Lanka), and Borneo.

TRACHOMA

There was a slight decrease in trachoma activity during the year, spread over all age groups. The manufacture of Achromycin 1 per cent. oily ophthalmic suspension was discontinued, resulting in a change to Terramycin 1 per cent. suspension as the antibiotic used in the local intermittent therapy regime.

DOSES OF SABIN VACCINE ADMINISTERED

Year										No. of Doses Administered
1967	....	....	....	....	....	....	....	....	....	379,550
1968	....	....	....	....	....	....	....	....	....	374,749
1969	....	....	....	....	....	....	....	....	....	123,765
1970	....	....	....	....	....	....	....	....	....	79,977
1971	....	....	....	....	....	....	....	....	....	111,232
1972	....	....	....	....	....	....	....	....	....	93,250
Total	....	....	....	....	....	....	....	....	....	1,162,523

TRACHOMA ACTIVITY 1972

Area	0-4 Years			5-9 Years			10-14 Years			Over 15 Years			Total		
	Ex.	Act.	% Act.	Ex.	Act.	% Act.	Ex.	Act.	% Act.	Ex.	Act.	% Act.	Ex.	Act.	% Act.
Lower Great Southern	107	46	43.0	224	74	33.0	137	22	16.1	0	0	0	468	142	30.3
Upper Great Southern	118	68	57.6	176	67	38.1	90	11	12.2	0	0	0	384	146	38.0
Central Agricultural	172	55	32.0	264	79	30.0	129	20	15.5	1	0	0	566	154	27.2
Northern Agricultural	152	74	48.7	298	97	32.6	171	35	20.5	0	0	0	621	206	33.2
Total	549	243	44.3	962	317	33.0	527	88	16.7	1	0	0	2,039	648	31.8

TRACHOMA ACTIVITY, 1963-72

Year	0-4 Years			5-9 Years			10-14 Years			Over 15 Years			Total		
	Ex.	Act.	% Act.	Ex.	Act.	% Act.	Ex.	Act.	% Act.	Ex.	Act.	% Act.	Ex.	Act.	% Act.
1963	718	493	68.7	679	405	59.6	414	114	27.5	192	15	7.8	2,003	1,027	51.3
1964	843	542	64.3	878	471	53.6	674	114	21.4	589	15	2.5	2,983	1,172	39.3
1965	1,073	675	62.9	1,199	534	44.5	869	122	14.0	113	1	0.9	3,254	1,332	40.9
1966	922	550	59.7	1,088	405	37.2	785	134	17.1	219	3	1.4	3,014	1,092	36.2
1967	372	205	55.1	465	138	29.7	295	28	9.5	28	.....	.....	1,160	371	32.0
1968	467	248	53.1	633	287	45.3	536	160	29.9	143	12	8.4	1,779	707	39.7
1969	843	387	45.9	956	247	25.8	662	55	8.3	48	.....	.....	2,509	689	27.5
1970	798	397	49.7	1,065	338	31.7	705	93	13.2	160	2	1.3	2,728	830	30.4
1971	766	413	53.9	1,234	489	39.6	691	126	18.2	183	4	2.2	2,874	1,032	35.9
1972	549	243	44.3	962	317	33.0	527	88	16.7	1	0	0	2,039	648	31.8

Appendix V

Veneral Disease Control Branch

W.A. Newnham M.B., B.S. Venereologist-in-charge

The year ending 31st December, 1972, is the first full year of operation of a venereal disease programme which commenced in November, 1971. Relevant to the implementation of this programme are :—

- 1. Special Treatment Clinics
- 2. Venereal Disease in Women
- 3. Contact Tracing
- 4. Notification
- 5. Case Finding
- 6. Education
- 7. Co-operation
- 8. The Future

1. Special Treatment Clinics

There are two clinics, one in Moore Street attached to the Royal Perth Hospital which operated throughout the year, and the other at Fremantle Hospital. The latter commenced on the 8th of June, 1972 with two clinics of one hour per week—one for women and the other for men. The hours of the female clinic soon had to be extended to two hours per week.

At the clinic in Perth prior to November 1971, there were two clinics for males and two clinics for females each week but subsequent to November 1971 the number of clinics was increased to six for males and five for females each week.

The table below summarises the patient attendances for 1971 and 1972 at the Perth Clinic :—

	Total patients attending the clinic	New male patients	New female patients	Total of new patients	P roportion male—female patients
1971	5,760	799	235	1,034	3·4 : 1
1972	10,786	1,615	597	2,212	2·7 : 1

It is apparent from these figures that total patients attending have nearly doubled and that new patients have more than doubled. Of particular significance is that, while new male patients have increased by 100 per cent., new female patients have increased by 150 per cent., which is a direct result of more energetic contact tracing.

2. Venereal Disease in Women

Up to 80 per cent. of women who have venereal disease are symptomless, and are not aware that they are infected. It is only by (i) increasing the efficiency of contact tracing, (ii) an acceptance by males that they should disclose the name/s of their female consorts, (iii) the co-operation of medical practitioners that this asymptomatic female reservoir can be tapped and treated.

Concerning (ii) :—After suitable explanation a large proportion of male patients have themselves brought their female contacts into the clinic. With other male patients names and addresses having been withheld at first, are frequently given at a second interview.

3. Contact-Tracing

As indicated in 2 (i) above, contact tracing is essential to the control of spread of Venereal Disease. During the year contact tracing was undertaken part-time, by one male officer of the Branch and has been largely confined to the metropolitan area. It is proposed in 1973 to increase the number of staff engaged in this important function, and to extend it to the country areas. It is anticipated that such staff will move from one country town to another, and that they will work under the direct supervision of local medical practitioners, but will be responsible to the Venereologist-in-Charge.

In relation to 2 (iii) above, the Venereologist-in-Charge visited the following towns :—

Gnowangerup	Geraldton
Kalgoorlie	Northampton
Wongan Hills	Three Springs
Dalwallinu	Moora
Morawa	Narrogin
Mullewa	

4. Notifications

There is considerable evidence that the visits to country towns resulted in a significant increase in notification of venereal disease.

Total Notifications—See Table 1.

Total notifications increased from 1,493 in 1971 to 1,728 in 1972, the highest recorded for any year since World War II. It is reasonable to attribute a significant portion of the increase to the active programme of communication with medical practitioners and to contact tracing. This needs to be borne in mind when comparisons are being made. While it is accepted that many cases in Western Australia are still not being notified, it is probable that those notified are in excess of the figure of 10 per cent. which is being quoted from surveys in other areas.

There were 231 more notifications of gonorrhoea in 1972 than in 1971, an increase of 19 per cent. which is more than the increase of 6 per cent. in 1971. Syphilis notifications in 1972 increased by only 1.5 per cent. compared with an increase of 60 per cent. in 1971.

Table 2 shows that 52 per cent. of all cases of venereal disease occurred in the 15–24 year old age group, which is consistent with the fluctuation around 50 per cent. for each year of the last decade.

From the age and sex distribution (Table 4) it can be calculated that 60 per cent. of female patients notified in 1972 are in the age group 15–24 years, characteristic of the range 54 per cent. to 73 per cent. for the decade 1963–72. This high percentage seen in the context of the rapid increase in the total number in this age group from year to year emphasises the need for systematic screening of women for venereal disease, particularly in this age group.

5. Case Finding

Department of Corrections

Case finding has been undertaken at three centres, in two of which all inmates are under 18 years of age. At the Bandyup Training Centre, Sister Schmitt, working under the direction of Dr. H. A. P. Walker has performed routine examinations, both clinical and serological on each inmate. Consequently, during the year 1972, 73 cases of venereal disease were detected, of which 26 were syphilis. At Longmore and Nyandi Detention Centres, Dr. J. Leavesley routinely examined all inmates and reported 41 cases of gonorrhoea in females and 12 cases in males. He also reported one case of syphilis in a female.

Police Department

At the Perth Central Lockup, 8 cases of syphilis were detected, and subsequently treated. There are no facilities at the lockup for routine clinical examination for gonorrhoea.

6. Education

A liaison has been initiated with Mr. J. T. Carr, Executive Officer of the Health Education Council, resulting in a co-operative effort to increase activity in the Venereal Disease sphere.

In the Shire of Northampton, a campaign extending over four days was initiated. The zeal of the local medical practitioner, Dr. R. Hutchinson and the local Health Inspector were largely responsible for the overwhelming success of this programme, which exceeded all expectations. A film on Venereal Disease was shown, not only to an adult audience, but to pupils of the High School, and to a Parents and Citizens Group at Yuna, 40 miles away. On all occasions discussion and questions indicated a real concern for the problem.

The Venereologist-in-Charge has given numerous lectures or addresses to medical, other professional and non professional groups.

Education is a day to day activity in the clinics from the clinic staff to patients. It is an important component in the communications of the Venereologist-in-Charge with medical practitioners particularly in relation to the desirability and the method of notification.

7. Co-operation

It is evident that there has been an encouraging degree of co-operation and help from many people and institutions in this programme of Venereal Disease control.

Co-operation from medical practitioners with whom contact was made has been outstanding. Local authorities such as Northampton have been extremely helpful. Royal Perth and Fremantle Hospitals have given valuable help with provision of facilities and with staff. The Departments of Correction and Police have helped a great deal in case finding, as has the Health Education Council in education. On the clinical side I have been ably supported by Dr. P. C. Thomas, F.R.C.O.G., who conducts all of the female clinics at Perth and Fremantle ; and by the nursing and orderly staff in the Branch.

Appreciation must be extended to the Public Health Laboratories for the help and co-operation shown by them during the past twelve months.

Also the initiative and co-operation of Dr. Mackay-Scollay and the Virus Laboratory in the original research work on chlamydia must be acknowledged.

As a keeper of records and tracer of contacts, Mr. S. W. Fleming has played a key role in the control programme.

8. The Future

The future control of venereal disease in the State of Western Australia depends upon :

- (i) Increasing publicity regarding the location of treatment centres for recently acquired cases of venereal disease and an awareness by the Public that such treatment is at the expense of the Public Health Department.
- (ii) To further extend the contact tracing from City to Country areas.
- (iii) To obtain the co-operation of a greater number of private medical practitioners, which group must be the first line of defence in any control programme.
- (iv) To extend and increase the Health Education Council activities in both City and Country areas.
- (v) To initiate routine medical and serological examinations of all prison inmates.

Relevant statistics for 1972 are presented herewith, together with comparable records for the previous ten years.

I take this opportunity of expressing to you Sir, appreciation for the support extended to me during the past twelve months.

Table 1
VENEREAL DISEASE—W.A.
1963-1972

Year	Gonorrhoea	Syphilis	Granuloma	Chancroid	Total Venereal Disease
1963	362	28	....	....	390
1964	392	11	....	....	403
1965	453	9	....	....	462
1966	690	20	....	....	710
1967	796	41	....	2	839
1968	718	60	1	....	779
1969	817	209	....	2	1,028
1970	1,166	159	3	....	1,328
1971	1,236	254	2	1	1,493
1972	1,467	258	2	1	1,728

Table 2
VENEREAL DISEASE—W.A. 1963-1972
AGE DISTRIBUTION

Year	15-19 Years	20-24 Years	25-29 Years	30-34 Years	Over 35 Years	Age Not Stated
	%	%	%	%	%	%
1963	24	30	13	11	21	1
1964	26	30	15	9	18	2
1965	23	31	17	10	16	3
1966	20	31	18	11	15	5
1967	24	25	16	12	20	3
1968	21	31	15	9	19	4
1969	20	27	17	13	21	2
1970	19	29	19	12	19	1
1971	23.91	29.74	18.00	10.78	17.34	.20
1972	25.46	26.85	17.93	10.93	18.75	.05

Table 3

VENEREAL DISEASE—W.A., 1967-1972

SEX DISTRIBUTION

Disease	Male					Female					Total				
	1968	1969	1970	1971	1972	1968	1969	1970	1971	1972	1968	1969	1970	1971	1972
Syphilis—															
Primary	32	140	77	119	106	14	35	54	72	106	46	175	131	191	212
Secondary	8	20	14	25	17	4	11	9	25	19	12	31	23	50	36
Tertiary	2	....	....	5	2	....	1	3	6	5	2	1	3	11	7
Congenital ....	....	2	1	1	2	....	....	1	1	1	....	2	2	2	3
Total Syphilis	42	162	92	150	127	18	47	67	104	131	60	209	159	254	258
Gonorrhoea	611	695	954	956	1,069	107	122	212	280	398	718	817	1,166	1,236	1,467
Granuloma	1	....	2	2	2	....	....	1	....	....	1	....	3	2	2
Chaneroid ....	....	1	....	1	1	....	1	....	....	....	....	2	....	1	1
Total Venereal Disease	654	858	1,048	1,109	1,199	125	170	280	384	529	779	1,028	1,328	1,493	1,728

Table 4

VENEREAL DISEASE—W.A., 1963-1972

AGE AND SEX DISTRIBUTION

A. MALES

Year	15-19 Years	20-24 Years	25-29 Years	30-34 Years	Over 35 Years	Age Not Stated	Total
1963	64	94	43	29	59	8	297
1964	70	98	57	33	63	12	333
1965	73	118	73	44	62	13	383
1966	101	205	113	67	96	33	615
1967	138	184	115	84	152	23	696
1968	112	215	107	59	137	24	654
1969	132	243	161	121	181	20	858
1970	163	321	219	140	192	11	1,046
1971	207	357	221	132	194	3	1,114
1972	223	365	234	142	235	1	1,200

B. FEMALES

Year	15-19 Years	20-24 Years	25-29 Years	30-34 Years	Over 35 Years	Age Not Stated	Total
1963	27	23	8	12	18	5	93
1964	32	19	7	2	10	....	70
1965	33	20	8	1	16	1	79
1966	39	16	12	11	14	3	95
1967	62	28	21	14	15	3	143
1968	54	28	12	12	14	5	125
1969	77	34	15	8	33	3	170
1970	89	61	38	25	60	6	279
1971	150	87	48	29	65	....	379
1972	217	99	76	47	89	....	528

Appendix VI

Community Health Services

L. J. Holman, M.B., B.S., F.R.C.S.E., D.P.H., F.A.C.M.A.

Senior Medical Officer

Targets 1972

Targets were set in 1972 in the following categories :—

1. Basic nutrition—total calories, protein, calcium, iron, vitamin A, vitamin B's, vitamin C, Folate.
2. Immunisation against tetanus, diphtheria, whooping cough, measles, poliomyelitis, tuberculosis and Hansen's Disease, rubella and smallpox.
3. Health education.
4. Eradication or control of endemic diseases—Hansen's Disease, yaws, ancylostomiasis, trachoma, gastroenteritis, moniliasis, tuberculosis.
5. Treatment of minor illness, trauma and infections.
6. Prevention of dependency.
7. Case finding in certain fields—endemic diseases, diabetes mellitus, obesity, abnormal development of children, venereal disease.
8. Family planning.
9. Pre and post delivery care of pregnant women and in ensuring hospital delivery.
10. Sight, hearing and limb conservation.
11. Health of pensioners.
12. School medical examinations.
13. Liaison.
14. Records
15. Research
16. Training.

Work done in relation to Targets

NUTRITION

All field staff agreed that the nutritional standard of the clientele rose in 1972. However, the minimum targets set were not achieved by 100 per cent. of the clientele in any area except Geraldton. In all other Community Health areas major deficiencies persisted in every category of nutrition despite the enormous effort of the field staff in 1972.

In Geraldton a random survey of nutrition in 19 families of the clientele was conducted by the Dietitian Students under the supervision of Mrs. Langelaan, the Public Health Departmental Dietitian.

A summary of the results are shown in Table 8. It should be noted that the percentages used in the summary refer to N.H. and M.R.C. recommended intakes which in some cases are slightly above the Community Health Services nutritional targets for 1972. The reasons for this excellent standard of nutrition among the clientele in Geraldton as compared, to say, Perth, are not as yet known.

Ninety per cent. of the Broome area clientele reached target. This “ success ” is considered to be due to the better availability of food there from fishing and vegetable gardening and to the presence of a more educated community.

No case of kwashiorkor was discovered or reported by field staff in 1972. However, 6 cases of Marasmus were reported in the Wyndham area and several other cases were found around Leonora.

Frank malnutrition was reported in the Kimberley (35 cases) ; Pilbara (6 cases) ; Perth (2 cases) ; Collie (1 case).

Measures taken by the field staff to increase nutritional standards were as follows :—

1. Encouragement of mothers to feed their children sufficiently and first before other members of the family.
2. Education in budgeting of income to meet nutritional need.

Table 8

GERALDTON SURVEY—OCTOBER, 1972—SUMMARY OF NUTRITIONAL INADEQUACIES

Family	Pro. %	Fat %	Mean Ca Range %	Min- imum Ca Range %	Fe %	B Carotene Equiv. %	Retinol %	Thia- mine %	Ribo- flavin %	Niacin %	Vit. C %	Calories %
1	70	....	....	....	....	....	....	....
2	Low	52	....	....	....	....	....	....	....	....
3	Low	50	....	....	....	....	....	....	....	77
4	Low	....	76	....	69	73	....	....	58	89
5
6	Low	75	91	....	16	....	90	....	62	....
7	74	75	....	....	94
8	Low	41	....	....	90	....	87	....	....	78
9	Low	79	....	....	....	....	....	....	....	85
10
11	Low	....	83	....	....	....	....	....	....	66
12
13	Slightly low	....	Low	....	....	....	....	58	66	....	....	78
14	Low	75	87	....	43	....	....	....	Trace only in diet	70
15	Low	79	....	....	....	....	....	....	....	....
16	Low	72	86	....	31	64	80	....	....	50
17	Low	6	9	....	13	9.5	9	....	....	14
18
19	Low	....	79	....	....	....	87	....	....	60

Figures shown in columns show percentage of R.D.A. reached.
Where no figures are shown, recommended allowances are reached or exceeded.

3. Education in food purchase to ensure the greatest nutritional value at least cost.
4. Education regarding food preparation, infant feeding and carbohydrate abuse.
5. Individual and group discussions, demonstrations, films and lectures regarding food particularly to mothers and school children. Mrs. Lange-
laan, the Public Health Department Dietitian, took part in some of the discussions.
6. Education in the use of dried and canned foods.
7. Encouragement to attend child health centres.
8. Baby competitions to foster motivation for improved child care.

9. Regular observation and checking food intake, growth of children, signs of malnutrition or deficiency, haemoglobin, pensioner nutrition.
10. Free supplements, where necessary, of food, vitamins A.C. B/12 and folate, minerals, iron, calcium and flouride.
11. Use of food samples from firms and food parcels from churches.
12. Promotion and education regarding the use of Australian Milk Biscuits, Vitabean milk, textured vegetable protein, special high protein canned baby foods (manufactured by a firm at special rates for bulk use), which were all sold by staff at prices comparable to the clientele's ability to pay—in some cases being distributed without charge.
13. Distribution of vitamins, Australian Milk Biscuits and milk through schools and kindergartens.
14. Promotion of school lunch programmes, milk drinks at picture programmes and "meals on wheels" for pensioners.
15. Promotion of school tuckshops.
16. Particular care regarding food and vitamin supplements of pregnant and lactating women.
17. Co-operation and liaison with Community Welfare Department Homemakers.
18. Attempts to combat alcoholism and neglect for children.
19. Obtaining fuel for cooking.
20. Liaison with Social Services to ensure an income for the destitute and with the Community Welfare Department for emergency relief.
21. Investigation (via Dietitians) of "bush tucker" food values and encouragement of the use of high value natural foods within the cultural framework.
22. Involvement of Aboriginal exemplars in flour supplements.

HEALTH EDUCATION AND HYGIENE

All field staff geared all their activities to teaching the clientele throughout 1972. Every possible situation was turned to advantage either for vis a vis impartment of knowledge or for demonstration to and discussion among groups of clients.

The clients were encouraged to demonstrate their own knowledge and to have group discussions on problems as they saw them. It was found that usually someone in the group had sufficient knowledge to be used as a basis for discussion. In Hall's Creek the Public Health Field Nurse supervised a group of older girls for "project" work in which they attended the Infant Health Clinic run by the Public Health Field Nurse. The attending babies were used for discussion and the teaching of mothercraft to the schoolgirls with the delighted consent of the babies' mothers who, because of their presence, also absorbed a good deal of useful knowledge.

Consensus group teaching was firmly established in Hall's Creek, Turkey Creek, Texas Downs, Durham River and Kalgoorlie. Client/demonstration methods of health education were established in 1972 in Broome, Derby, Port Hedland, Wyndham, Balga, Geraldton, Gnowangerup, Kalgoorlie, Leonora, Midland Junction, Narrogin and Coolbellup. The venues used varied with the area but included reserves, homes, schools, missions, cattle stations, camps and Public Health Field Nurses' vehicles.

Subjects covered in both concensus group and client demonstration methods also varied but included nutrition, first aide, chest exercises, diabetic care, cooking, use of textured vegetable protein, minor treatments, baby toilet care and hygiene, infant feeding, use of soap and water, ear toilets, dressings, eradication of scabies and lice, postural drainage, poison prevention, use of medicated soap, early attention to sores, infections and cuts, etc., care of wounds, care of hair, sterilisation of bottles, insect eradication, care of toilets, family planning, child accidents, clean drains, use of simple household medicines, personal hygiene, housekeeping, eye toilets, rubbish disposal, space conservation in houses to prevent overcrowding, washing clothes, bed linen and blankets, communication with the community, drug abuse, nasal hygiene, breast feeding, alcoholism, pregnancy care and venereal disease.

Other activities in the health education and hygiene field included a nine week course for high school girls at Carnarvon consisting of 2 x 40 minute periods a week on Community Health, Basic physiology, first aide, the role of the Public Health Field Nurse, meat inspection (by meat inspector), bacteria (by lab. technician), a loop film on sex education, and alcohol.

In Derby films were used for teaching family planning. The Aboriginal tribal Elders were invited to a preview of the films and gave consent to their viewing by their people. After the showing there followed much discussion and one of the Elders made a very stirring speech to his people in support of family planning—that speech was taped by our staff as a record of a major break through.

Film evenings on many varied subjects were used by the Derby staff and were accompanied by demonstrations in cooking and “tasting sessions” at interval. These proved very popular but the nett gain in attitude change was not always as expected, e.g. the clientele were shown films on hookworm—at the discussion sessions the Community Health Services staff were amazed at the detailed and accurate knowledge possessed by their clientele in regard to all aspects of the parasite, its mode of spread and the results of infestation. However, the clientele still go barefooted and there has not been a massive reduction in the incidence of indiscriminate defaecation. Although the clients have a sound knowledge of the subject they have not been motivated to overcome the problem.

We believe that the cause of this failure is the lack of adequate and optimally placed toilet facilities and the cultural trait of going barefoot because a footprint leaves a message among the Aborigines and toes are used in more prehensile functions than among Caucasians, e.g. to pick up wood, etc. In a culture where the earth is the universal table and manufactured tables and cupboards are very scarce it is unreasonable to ask that people repeatedly bend down to pick up something when for centuries the article has been lifted with little effort between the toes.

I have entered into some detail here to show the enormous complexity involved in attempting to change an attitude among persons who enjoy another culture.

Where proposed change opposes the edicts of that culture then failure will result. Although our staff try to take this basic rule into account it is often difficult to foresee where and in what way opposition may arise since we are ignorant of the fine details and nuances involved. It is for this reason that Community Health Services has aimed to employ and co-opt the help of as many Aboriginal exemplars as possible.

In Port Hedland, Community Health Services staff gave lectures at the schools and kindergartens.

In Wyndham, Port Hedland, Hall's Creek, Fitzroy Crossing, Carnarvon and Leonora, Public Health Field Nurses undertook the staffing of Child Health Clinics for the entire populations.

Some form of kindergarten or pre-school activity is now taking place in all areas where Community Health Services employs field staff. In all cases the field staff are involved in some way in these activities. The commitment varies from liaison with the kindergarten staff and the regular checking of the health of the attenders to the actual teaching of the kindergarten (as at Hall's Creek) or the management of it at executive level (as at Derby). This involvement with pre-school education is in line with our

aim to provide a “ head start ” for our clientele so that by the time they go to primary school they will not be ignorant of basic matters, the knowledge of which come as second nature to their Caucasian counterparts. By this means the “ cultural shock ” is lessened and the ability to compete increased. There are also many other advantages in that :—

1. It is in the youngest children that greatest success in health should be obtained to provide a healthy coming generation.
2. A focus of knowledge in the young exerts pressure on all other age groups.
3. Communication is easier as most children learn English as a parallel language.

The percentage of clientele still ignorant of the simplest health regimes varies tremendously with the area involved and the length of time Community Health Services staff have been incumbent.

In the Southwest and in principle towns in the Kimberley and Pilbara nearly all clients have some knowledge. The main problem is that they don't consistently practice what they know.

In areas such as Balgo Hills, Leonora and Kalgoorlie there is still a large proportion of the Aboriginal population who are totally ignorant of the simplest rules of hygiene. In these areas Community Health Services staff have not been present for sufficient time to have an effect and also the clientele are constantly shifting so that any continuing process of education is more difficult.

IMMUNISATION

Tetanus

The targets were achieved for children and pregnant women and in nearly all areas for the adult population. 7,584 injections for tetanus immunisation were either given or promoted to be given by Community Health Services staff in 1972.

Staff reported there were no cases of tetanus in the population under their care.

Diphtheria

Four areas reported 100 per cent. protecting cover of their clientele aged 3/12—6 years. 10 areas returned a figure between 75 per cent. and 90 per cent. of the clientele covered.

The greatest difficulty was found in Leonora where the nomadic habits of the population made completion of the immunisation course exceptionally difficult.

Staff reported there were no cases of diphtheria among their clientele in 1972.

4,502 diphtheria immunisation injections were given or promoted by Community Health Services staff in 1972.

Whooping Cough

Five areas reported 100 per cent. immunisation cover of the clientele aged 3/12—2½ years.

Eleven areas reported over 75 per cent. cover.

3,729 injections for Whooping Cough immunisation were given or promoted in 1972.

Six suspect cases of Whooping Cough were reported by our staff in Kalgoorlie but were not confirmed by laboratory tests.

Measles

The target of 85 per cent. cover was not achieved. 297 injections were promoted or given. There was a measles epidemic in the Kimberley in 1972 with over 219 cases reported.

Twenty one cases were reported from Leonora and also scattered cases elsewhere.

No deaths were known to result from measles in 1972.

Polio

For children 100 per cent. immunisation cover was reported in 3 areas. Six areas reported 95–99 per cent. cover. Six areas reported 60–94 per cent. cover.

Adult cover was very variable ranging from 5 per cent. at Pingelly to 90 per cent. in the Broome area. 3,586 doses of vaccine were promoted or given.

No cases of polio were reported in the clientele in 1972.

B.C.G.

100 per cent. of children 0—1 year among the Aboriginal population received B.C.G. in Port Hedland and the Kimberley.

Community Health Services promoted the use of B.C.G. vaccine for Aboriginal infants as a protection against Hansen's Disease as well as Tuberculosis.

415 B.C.G.'s were given or promoted in 1972.

Rubella

381 immunisations for Rubella were given or promoted to young girls among the clientele in 1972.

Smallpox

509 smallpox vaccinations were promoted in 1972.

Other Immunisation

Typhoid—25 immunised.

Cholera—700 persons immunised.

Mantoux Testing for Perth Chest Clinic—Over 157 Mantoux tests carried out.

It should be noted that the Epidemiology Branch of the Public Health Department and various Shires and G.P.'s provide the majority of facilities for immunisation in the Southern half of the State. In these districts Community Health Services staff aimed to encourage their clientele to attend the established clinics and the staff assisted where necessary in the clinics.

In some centres Community Health Services promotion was so effective that clinics were overloaded.

ENDEMIC DISEASES

Leprosy—Hansen's Disease

The intensive campaign against Hansen's Disease in Western Australia has continued in 1972, as can be seen from the report of Dr. Spargo included below.

Hansen Disease Control Officers Report of 1972

R. M. Spargo, M.B., B.S.

Herewith my Report for 1972 which is presented under the following headings :—

1. Hansen Disease and the Community
2. Surveys
3. Prophylactic Measures
4. Biopsies
5. " E " External Register
6. Hansolar Trial
7. Surveillance
8. Leprosarium

1. Hansen Disease and the Community

There is a definite improvement in the attitude of the susceptible ethnic group in coming forward for periodic Hansen Disease examination, and also in the voluntary presentation of suspicious lesions to the Community Health staff.

In each town in the Kimberley, responsible European members of the community are setting an excellent example by presenting themselves and their children for examination. However, the European population is largely ignorant about Hansen's Disease. As a consequence, upon learning of its occurrence in the Kimberley it becomes a racist issue, with a hardening of attitudes towards the susceptible ethnic group.

For the future, gradual guided education of the community at all levels is important.

2. Hansen Disease Surveys

Survey time this year was limited to five months, July to November. During this period an estimated 40 per cent of the susceptible ethnic group in the Kimberley was examined.

The survey was confined to the Kimberleys during 1972.

Surveys were carried out in conjunction with the Public Health Field Nurse in the area concerned.

Case finding and/or Hansen Control takes place in association with the control of other diseases. Hansen examinations took place in the following situations :—

1. Kimberley schools
2. Towns
3. Missions
4. Stations
5. School children going south for schooling

Kimberley Schools

Hansen Disease examination of all school children was incorporated in the annual school medical examinations.

Towns

Derby, Kununurra and Fitzroy Crossing were surveyed during 1972.

Missions

All Missions except Balgo Hills were surveyed during 1972. Balgo Hills Mission people were all seen by Dr. T. R. Henderson.

Stations

Station surveys were confined to the Fitzroy Crossing area and included the following :—

Fossil Downs
Go Go
Brooking Springs
Jubilee
Quanbun
Christmas Creek
Cherrabun

School children going south for schooling

It was attempted to see all children returning south or going south for the first time for education purposes.

Greater coverage will be obtained with more cognisance of the many different groups responsible for sending these children to schools in the south.

Currently the only formal list is that submitted by the Education and Science Grants Scheme. Children travelling south under the auspices of the Grant System are a minority.

Hansen Disease Statistics

A. Kimberley

1. Records of Persons Examined—	1972
School children, Kimberley	1,797
School children going South (SEG)	134
Inpatients Leprosarium	88
Others	7,381
Total of Record Cards	9,400
2. School Children, Kimberley	
“ E ” or External Register	6
Internal Register	19
Contacts	354
History of Treatment	103
Treatment ceased	60
Treatment commenced	31
Total children examined	1,797
3. Children Going South for Schooling	1971 1972
“ E ” or External Register	Nil Nil
Internal Register	Nil Nil
Contacts	24 25
History of Treatment	1 1
Treatment ceased	Nil Nil
Treatment continued	4 Nil
Treatment commenced	Nil 1
Number of children examined	128 134
(Secondary Education Grants)	
4. Surveys (1972)—	
(a) Total examined	4,385
(b) “ E ” or External Register	26
(c) Internal Register	300
(d) Contacts	880
(e) Treatment ceased	91
(f) Treatment commenced	33
(g) Balance	5,015
	9,400
5. Balance to be examined	5,015
a. Ex Leprosarium	
(i) from register	396
(ii) from cards	290
(Actual figures will be considerably under both a. (i) and (ii)).	
b. Contacts	600
6. Currently Receiving H.D. Treatment	
a. Leprosarium	88
b. Registered out-patients	156
c. Prophylactic	48
7. Total Number with History of Prophylactic Treatment	401

B. *Pilbara*

No formal survey in 1972

1. Total of cards	....	....	....	....	....	2,508
2. " E " Register	....	....	....	....	....	1
3. Ex Leprosarium		....	....	....	....	7
4. Contacts	....	....	....	....	....	35
5. History of Prophylactic treatment				....	....	25
6. Currently on Treatment....		....	....	....	....	8

C. *Ashburton*

(Including Onslow). Cards now located at Carnarvon

Prophylactic Measures

B.C.G. injections continue to be given to all the new born of the susceptible ethnic group.

A 100 per cent. coverage is obtained in the Kimberley.

A policy of empirical treatment, for tenderness of peripheral nerve trunks, with D.P.T. Ciba 1906 has been continued.

Additions to the " E " or External Register

1970	—	13
1971	—	9
1972	—	4

Hansolar Trial

During 1972 conjoint work on the metabolism of Hansolar (diacetyl dapsone) D.A.D.D.S. between the University Department of Pharmacology and the Leprosarium at Derby was carried out.

The object of the study was to determine whether the target ethnic group was able to adequately deacetylate D.A.D.D.S. to the (monocetyl dapsone) M.A.D.D.S. and (dapsone) D.D.S. In addition to ensure that this group does not acetylate M.A.D.D.S. back to D.A.D.D.S. which is not therapeutically active against *Mycobacterium leprae*.

Preliminary results indicate that there is a group of patients at the Leprosarium who have markedly high " Acetylating powers " (however, this could indicate low deacetylating rather than very high acetylating ability).

If this group has weak deacetylating power, maybe a larger than normal dose of Hansolar will be needed for effective treatment.

My personal view is that Hansolar will be useful in supplementing the out-patient regime of Dapsone and ensuring that some of the less reliable patients have a therapeutic plasma suphone concentration all the time.

Surveillance

Public Health Field Nurses keep a close watch on discharged patients who are on maintenance Dapsone.

Routine observations include weight, haemoglobin, urinalysis and arterial blood pressures, with inspection of appendages with special attention being given to the hands and feet. I feel quite confident in the ability of these nurses in regard to detection of any abnormality of the above.

The nurses refer these patients to the Local Medical Officer or myself for periodic review.

I am less confident about patients discharged to areas not yet covered by Public Health Field Nurses.

Unfortunately, there are many registered Hansen patients discharged in the past, not on any treatment, who escape surveillance from Community Health Services mainly because they are not yet known to the field nurses. It will be the aim to rectify this situation this year, with the inclusion of all these patients on the surveillance list, with the further aim of pinpointing the contacts for intensified observation.

The biggest problem of out-patient Hansen control in Kimberley is to keep discharged patients on treatment, especially regular treatment.

Leprosarium

1. *Statistics*

(a) New admissions								
(i) Lepromatous	....	....	....	....	....	....	....	1
(ii) Tuberculoid	....	....	....	....	....	....	....	2
(b) Readmissions								
(iii) Lepromatous	....	....	....	....	....	....	....	3
(iv) Hansen complications	....	....	....	....	....	....	....	9
(c) Births	....	....	....	....	....	....	....	1
(d) Deaths	....	....	....	....	....	....	....	3
(e) Discharges	....	....	....	....	....	....	....	51
(f) Transferred to East Arm	....	....	....	....	....	....	....	2
(g) Total at Leprosarium at 31st December, 1972	....	....						88

2. *Eyes*

There were no eye complications, the direct result of Hansens Disease.
Several patients have had successful cataract extractions.

3. *Dental Care*

Patients continue to have regular dental coverage.

4. *Reactions*

Only two (2) patients had reactions during 1972. These were quickly brought under control. One patient is now known to have an adverse reaction to Dapsone. She is now maintained on Rifampicin and Lamprene.

5. *Anaemia*

This is now the most important complication at the Leprosarium. Precipitous falls in the Haemoglobin level necessitating transfusion are occurring quite often in a selected group of older patients.

These anaemias are completely unresponsive to therapy until the Dapsone has been ceased.

One patient has had Dapsone ceased because of repeated falls in the Haemoglobin. Currently she is maintained on Rifampicin and Lamprene. It is noteworthy that her anaemia now responds to routine measures. However, long term use of these drugs will possibly not be successful against Hansen's Disease.

6. *Nerve Abscesses*

No nerve abscesses occurred.

7. *Trophic Ulceration*

A total of thirty three (33) ulcers of the plantar aspect of the feet or malleoli necessitated admission to hospital. These occurred among twenty three (23) patients. Seven of these patients having had more than one admission.

8. *Neuritis*

Four patients were admitted to hospital with neuritis. Mostly these settled down quickly without complications. However, one patient, despite Prednisone has gone on to a bilateral upper extremity neuropathy.

9. *Drugs*

A. D.P.T. (Ciba 1906)

This drug is used on all new admissions. It is continued for a total of two (2) years. Thus, most patients at the Leprosarium are no longer receiving this drug.

B. Dapsone (D.D.S.)

Dapsone remains the main drug used at the Leprosarium and for the maintenance regime for discharged patients.

Since the advent of Lamprene (B663) there has been little trouble from reactions but Dapsone administration would appear to be associated with the marked falls in haemoglobin levels seen and its continuation, with the resistance to treatment instigated against anaemia.

C. Lamprene (B663)

I am quite sure that the addition of Lamprene to the drug regime has been responsible for favourably altering the prognosis of many patients at the Leprosarium. This is manifest as elimination and amelioration of reactions and obtaining a zero Bacterial Index in patients not formerly responding to Dapsone alone.

During the year a number of patients complained of abdominal pain and diarrhoea. With cessation of B663 their complaints ameliorated and indeed the B663 could be reintroduced at a reduced dosage without resumption of the abdominal pain and diarrhoea.

One patient came to laparotomy. She was found to have swollen pigmented abdominal lymph nodes. This histopathology revealed tuberculoid reaction within the nodes. She also settled down after reduction in the dose. The maintenance dose had been large, 100 mgm, tds. Some appear to tolerate it, others cannot.

D. Steroids

Steroids are used very little now, except for hypertrophic neuritis.

E. Rifampicin

I feel Rifampicin will be useful in combination with Dapsone and/or Lamprene in the management of the Lepromatous case, to obtain the non-bacilliferous state at a much earlier stage.

F. Hansolar (D.A.D.D.S.)

Hansolar (D.A.D.D.S.) may become a useful adjunct to out-patient maintenance Dapsone.

R. M. SPARGO,
Community Health Services,
Regional Medical Officer,
Kimberley Region.

A summary of Western Australian statistics for Hansen’s Disease since 1909 is given below in Table 9. When these figures are depicted graphically (Graphs 5 & 6) it can be seen that the present number of patients in the Leprosarium is less than recorded in any previous year.

Also, apart from the expected upsurge of notifications when intensive surveys of the population at risk was commenced in 1968, there has been a sharp decline in notified cases to reach the 1932 figure.

Since intensive surveys of the at risk population continue it must be assumed that the incidence of Hansen’s Disease is at an all time low in Western Australia and that prevention, case finding and treatment are proving successful.

Table 9
LEPROSY—NUMBER OF PATIENTS WITH HANSEN’S DISEASE
WITHIN LEPROSARIUM NOTIFIED BY YEAR.
Source of Information, P.H.D. Reports.

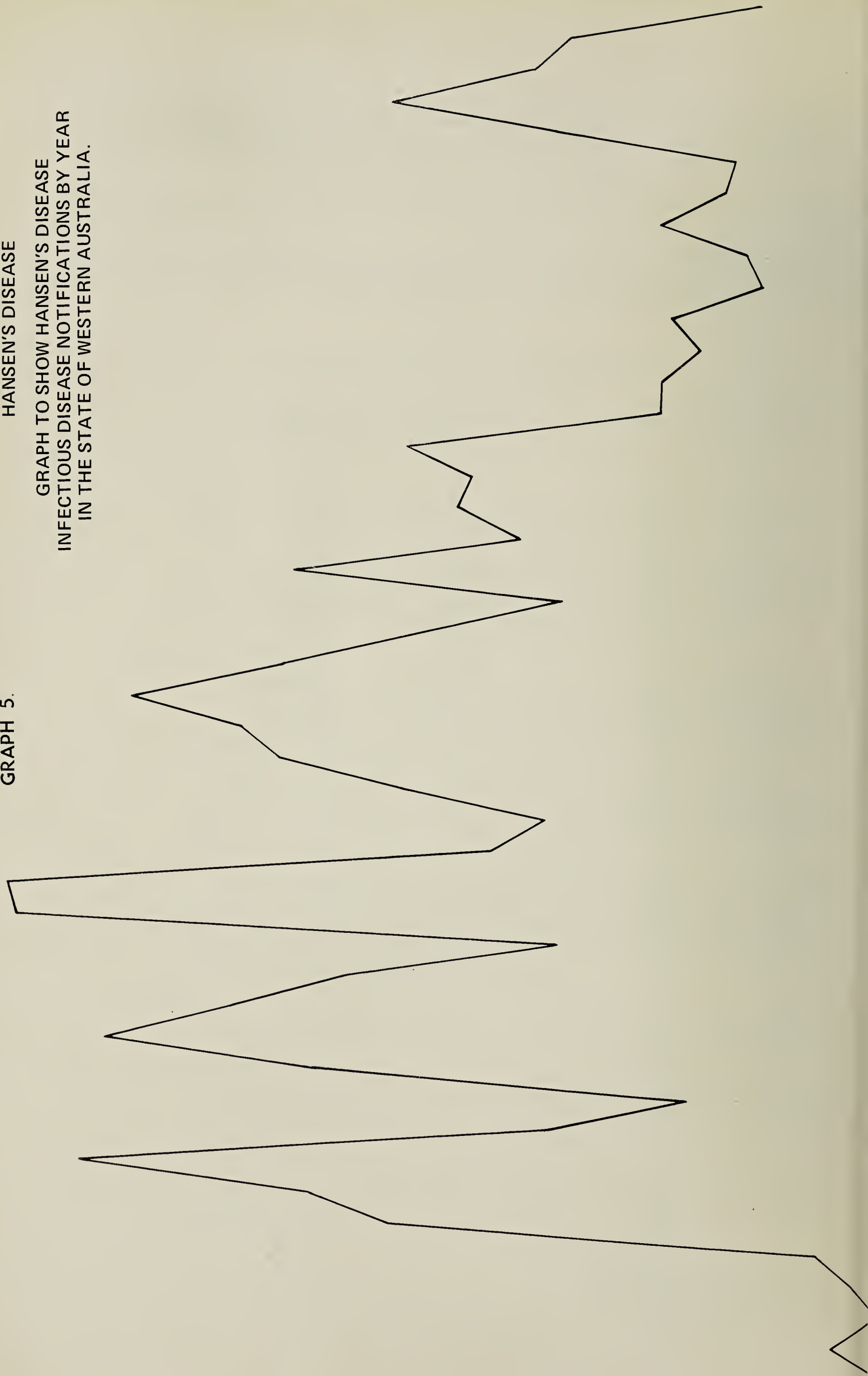
Year	Leprosarium Inmates as at 31st December	Infectious Disease (Hansen’s Disease) Notifications
1972	88	10
1971	129	25
1970	138	28
1969	155	39
1968	181	26
1967	170	12
1966	178	13
1965	178	18
1964	164	11
1963	166	10
1962	179	17
1961	169	15
1960	159	18
1959	126	18
1958	150	38
1957	175	33
1956	198	34
1955	211	29
1954	246	47
1953	262	26
1952	303	37
1951	333	48
1950	305	60
1949	268	51
1948	247	48
1947	238	38
1946	231	27
1945 ....	....	31
1944 ....	....	70
1943	220	69
1942 ....	....	26
1941 ....	....	43
1940 ....	....	52
1939 ....	....	62
1938	120	45
1937 ....	....	16
1936	90	27
1935 ....	.... Derby Leprosarium	64
1934 ....	.... opened.	45
1933 ....	....	39
1932 ....	....	5
1931 ....	....	2
1930 ....	....	....
1929 ....	....	4
1928 ....	....	....
1927 ....	....	4
1926 ....	....	1
1925 ....	....	3
1924 ....	....	2
1923 ....	....	2
1922 ....	....	....
1921 ....	....	....
1920 ....	....	....
1919 ....	....	....
1918 ....	....	1
1917 ....	....	....
1916 ....	....	....
1915 ....	....	....
1914 ....	....	....
1913 ....	....	1
1912 ....	....	1
1911 ....	....	1
1910 ....	....	2
1909 ....	....	4

NUMBER OF NOTIFICATIONS

GRAPH 5.

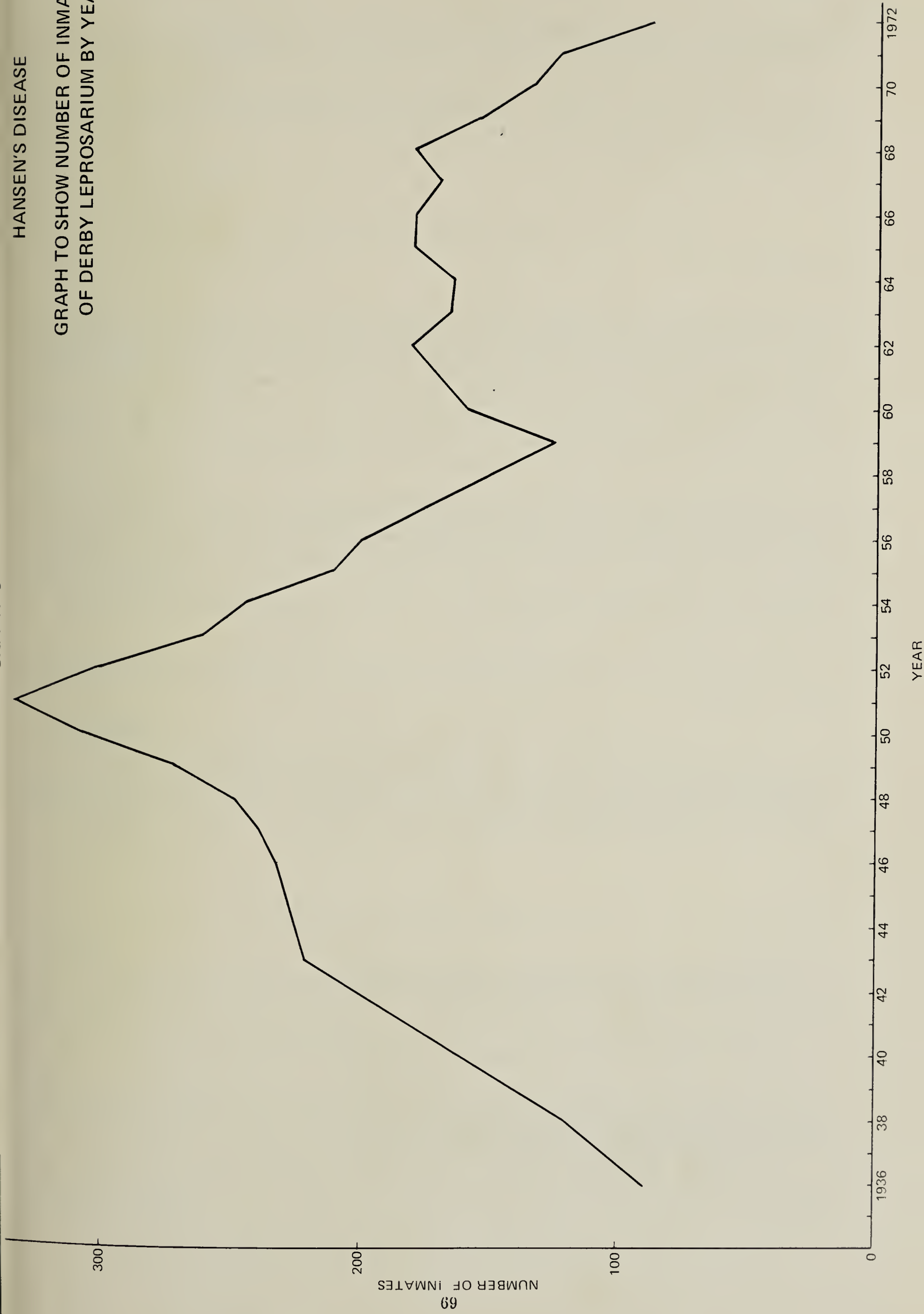
HANSEN'S DISEASE

GRAPH TO SHOW HANSEN'S DISEASE
INFECTIOUS DISEASE NOTIFICATIONS BY YEAR
IN THE STATE OF WESTERN AUSTRALIA.



HANSEN'S DISEASE

GRAPH TO SHOW NUMBER OF INMATES
OF DERBY LEPROSARIUM BY YEAR.



Yaws

Health education regarding the disease was attempted in endemic areas and a watching brief was maintained for new cases. Six new cases were referred for treatment.

In Kalgoorlie a large number of persons undergoing investigation for V.D. were found to have positive serology. As serology tests are identical for yaws and syphilis, there is difficulty in distinguishing the two diseases at a late stage. All positive serology cases received treatment.

Hookworm

The growing of garlic is mooted to eradicate the larvae of many parasites from soil. A study was instituted at Derby. It was a failure because the plants were either eaten by the clientele or stray herbivores. Hookworm is only prevalent in the upper tropical regions and in these regions campaigns were undertaken by Community Health Services staff in health education, treatment of soil by salting or surface sealing, toilet training, promotion of footwear, treatment of cases, and case finding surveys.

All cases found were referred for treatment and later followed up.

An arrangement has been made whereby a copy of every laboratory report from Public Health Laboratories showing parasite infestation is forwarded to the Senior Medical Officer of Community Health Services and the information is then forwarded to the Community Health Services Regional Medical Officers and the Public Health Field Nurses concerned with the area of origin. Field staff ensure that cases have received treatment, survey other members of the family and take appropriate measures to eradicate recurrence.

In 1972 in several areas salt was laid on infested soil at the request of Community Health Services Staff and sealing of the ground around taps and proper drainage were also encouraged.

The use of other parasiticides is being investigated, e.g. Borax and Malathion.

Public Health Field Nurses supervised 419 treatments for hookworm in 1972. The discrepancy between the number of laboratory results and treatments occurs because Kalumburu received blanket treatment.

Trachoma

In the southern half of the State trachoma treatment comes under the control of the Epidemiology Branch of the Department.

In the Northern section of the State blanket treatment for trachoma was given at Balgo Hills, Broome, Fitzroy Crossing and Hall's Creek to 1,400 persons.

In Carnarvon 370 school children were examined and 38 treated. At Derby 575 school children were examined and 53 treated. 18 cases were treated at Port Hedland, 68 in Wyndham and 24 on stations in East Kimberley.

In Collie 16 Aboriginal children were referred for treatment for conjunctivitis. Trachoma treatment was given at Leonora and Laverton to an unspecified number of cases.

Health education regarding flies and handwashing is a continuous process.

Gastroenteritis

Campaigns against gastroenteritis were mounted in all areas. These included health education regarding :—

- hand washing
- hygienic housekeeping
- fly control
- rubbish disposal
- infant feeding
- toilet care
- sterilisation of drinking water in remote areas
- cooking instruction
- cleanliness of clothes

Liaison was maintained with Community Welfare Department Homemakers wherever possible. 10 deaths among the clientele were reported from gastroenteritis—Derby (3), Fitzroy Crossing (2), Hall’s Creek (2), Port Hedland (2), and Wyndham (1).

Monilia

Campaigns against Moniliasis were undertaken at Broome, Hall’s Creek, Port Hedland and Coolbellup.

In Broome 6 cases of infantile oral thrush and a large number of adult vaginal infections were detected and referred to the District Medical Officer and subsequent treatment was supervised by Public Health Field Nurses. In other centres figures were as follows :—

Hall’s Creek	....	....	13 infants	8 adults
Port Hedland	....	....	23 infants	
Balga	....	....	2 infants	
Midland Junction		....	3 infants	

Tuberculosis

In most areas Public Health Field Nurses were involved in tuberculosis control for the Perth Chest Clinic. This work consisted of the referral of suspects ; follow-up of 20 ex-patients for x-rays and drug therapy ; work with contacts in the form of Mantoux testing, vaccination with B.C.G. and the promotion of chest x-rays.

OTHER ENDEMIC DISEASES

Hepatitis

22 contacts were referred for gamma globulin in Broome ; 3 cases were referred to the District Medical Officer at Hall’s Creek and considerable work was done during the hepatitis outbreak in Roebourne.

Hymenolepis nana

249 cases were detected, referred and treatment followed up. Investigation of the families of origin was undertaken and preventive measures instigated where possible.

Trichuris trichura

10 cases in the Kimberley were referred for treatment.

Giardia lamblia

Giardiasis is gaining significance as a pathogen in Western Australia. Positive findings in Governmental laboratories have risen sharply in the last 12 years from 4 in 1961 to 525 in 1972.

Case Finding

Case finding for specific diseases has not been a major aim during 1972, because of cost/benefit considerations and the nurse/hours available.

Certain specific diseases were listed for particular attention. The referrals resulting were as follows :—

endemic diseases (see previous section)				
diabetes mellitus	....	....	....	16
obesity	....	....	....	54
abnormal development	....	....	....	125
venereal disease	....	....	....	140

Apart from actual case finding 151 cases of venereal disease were followed up by field staff under orders from medical practitioners.

Work was also carried out to ameliorate the effects on health resulting from :—

- prostitution
- alcoholism
- excessive gambling
- childhood pregnancy
- neglect of children

These are deep seated social problems and it is recognised that solutions to them cannot be found or instituted by medical staff alone. In all areas field staff considered that, of the above, alcoholism was the most widespread problem with the greatest impact on the health of the clientele.

Only one drug addict was found and referred in 1972. Minor illness detection and treatment was used by the field staff throughout the year as a means of familiarisation of the clientele. Minor illness provides a convenient stepping stone towards health education. The clientele became confident in the ability of the field staff to give advice and became proficient in many cases with the use of household remedies and medicants.

Several very basic concepts were taught, e.g. the conception of measured time, the ability to numerate, the concept of secondary prevention in that early treatment prevents subsequent more serious illness and perhaps hospitalisation. In regard to this latter aspect some hospitals reported a considerable drop in out-patient attendance figures.

Field staff report approximately 5,000 treatments undertaken per nurse per year.

In all areas the medical practitioners were approached and their wishes regarding the level of illness for referral to them were followed.

Examples of the type of minor ailments treated by staff are :—

Infections—

- Boils and ulcers
- Minor conjunctivitis or otitis
- Scabies and lice
- U.R.T.I.'s
- Thrush

Trauma—

- Small lacerations, bruises, abrasions
- Minor sprains
- Splinters, stone bruises

Illnesses—

- Insect bites
- Prickly heat
- Heat exhaustion
- Feeding problems
- Hangover

Examples of referred illnesses were :—

Infections—

Respiratory, urinary tract, trachoma, otitis externa and media, gingivitis, gastroenteritis, impetigo, chicken pox, tonsillitis, salpingitis, parasite infestation, venereal disease, osteomyelitis.

Trauma—

Concussion, large lacerations, fractures, burns.

Illnesses—

Thyrotoxicosis, anxiety and depression states, psychosis, dental caries, failure of development, antepartum haemorrhage.

Referral figures varied greatly from 3 at Balgo Hills to 170 at Narrogin.

PREGNANCY

A concerted effort was made to ensure the attendance of pregnant clientele to antenatal and post natal clinics and to ensure that delivery occurred within a hospital. 8 centres reported that 100 per cent. of pregnant clientele attended antenatal clinics at sometime in the first 8/12 of pregnancy. 7 other areas reported an attendance of better than 90 per cent. The lowest figure recorded was 60 per cent. at Port Hedland. Regarding post natal clinics only 3 centres reported 100 per cent. 5 centres reported a better rate than 90 per cent. and 4 others better than 80 per cent. The lowest figure was 0 per cent. at Gnowangerup.

Three centres reported that it was not routine medical practice in the area for the pregnant clients to have blood taken for WR, KAHN, etc. and in one of these one case of ophthalmia neonatorum was reported. Congenital syphilis was noted in some areas in spite of routine testing. Two centres reported that clientele did not receive any blood examination at all as a routine in pregnancy.

In areas where there are field staff only eight deliveries occurred outside of a hospital. Two of these were due to isolation of the clients and two were due to delivery before the expected dates. The other four were due to unavoidable circumstances.

Breast Feeding

Encouragement of breast feeding to the age of six months was an important part of the Community Health Services programme for 1972. Unfortunately no great success was achieved in this field in some areas. The only successful areas in obtaining 100 per cent. of babies breast fed to six-months among persons in low socio-economic circumstances were :—

- Balgo Hills
- Fitzroy Crossing
- Port Hedland (full blood Aborigines only)

In other areas the reasons for failure in rank order were :—

1. Hospitalisation of child or mother.
2. Mother refused to breast feed because :
 - (i) she wanted a good time,
 - (ii) she couldn't be bothered,
 - (iii) she was an Aboriginal who claimed " white women don't breast feed ".
3. Contraceptive pills.
4. The milk supply failed.
5. Prematurity.
6. Poor nutritional status of mother.
7. Sibling competition for milk
8. Maternal neglect.
9. Working single mothers.
10. Mother evacuated without child.
11. Mother habitually drunk or in jail.
12. Immediate pregnancy.
13. Total family abandonment by mother.
14. Mother chronically ill.
15. Inverted nipples in a mother with low I.Q.
16. Non-establishment of supply after Caesarian Section.

FAMILY PLANNING

Except on one Mission area where contraception is not encouraged for religious reasons, all field staff offered advice individually and to groups of clients in order to achieve the service aims.

167 women were referred and subsequently received some form of contraception. Methods varied and included :—

tubal ligation and salpingectomy
intrauterine device
contraceptive pills
rhythm method.

Sources were :—

Government hospitals
General practitioners
Community Health Services Regional M.O.'s
R.F.D.S. flying doctor
Family Planning Association Clinic.

Where Aboriginal women were prescribed contraceptive pills but could not afford the purchase price (before the alteration of the N.H.S. to include contraceptive pills) the pills were supplied by Community Health Services.

DEPENDENCY PREVENTION

Field staff were unable to estimate the number of persons prevented from total dependency or long term hospitalisation. Considerable work was done in the supervision of diabetic treatment as ordered by the patients' doctors, and in helping with the management of the chronically ill or incapacitated.

PENSIONERS

In 1972, 761 Aboriginal and 78 other pensioners were attended by Public Health Field Nurses. Measures taken to promote good health among these people included :—

1. frequent and sometimes daily visits by staff,
2. help in obtaining food, clothing, blankets, firewood, transport, domestic help, admission to nursing homes, G.P. appointments, admission to social clubs, pensions and social services and medicines,
3. attendance to diet,
4. distribution of vitamin, mineral and food supplements,
5. checking water supply,
6. shopping guidance,
7. examination and action regarding sight, hearing and locomotion,
8. referrals to G.P.'s, R.F.D.S., hospitals,
9. supervision of treatment,
10. prevention of loneliness.

One very active senior citizen wished to help the Service in its work and a position was found for him. He does a magnificent job.

SIGHT, HEARING AND LIMB CONSERVATION

Conservation of sight

In 1972, 2,541 persons were tested by Community Health Services for sight defect and other abnormalities. Of these 236 were referred for further treatment. On December 31st, 1972, only 28 had not yet received attention.

Conservation of hearing

976 persons received audiometric hearing tests and also ear examinations. Of these 240 were referred for further treatment. 35 referrals were outstanding at 31st December. At any one time approximately 400 children throughout the State have regular ear toilets for chronic otitis supervised by field staff.

Limb conservation

Over 200 persons received treatment or advice for limb conservation by Community Health Services in 1972. The staff estimate a definite saving from complete loss of 12 limbs.

SCHOOLS

Teaching in schools or to school children groups was carried out at Broome, Carnarvon, Derby, Hall's Creek, Port Hedland and Kalgoorlie and Leonora. Subjects included first aid, hygiene, V.D., immunisation, basic anatomy and physiology, environmental health, mothercraft, ear and eye care, causes of infection, and menstruation.

Projects involving school children were undertaken at :—

- Balgo Hills—Hookworm
- Carnarvon—Height, weight and skinfold
- Derby—school lunches
- Hall's Creek—bush tucker and mothercraft
- Kalgoorlie—Geriatric social studies
- Leonora—bush tucker and rock minerals.

Dr. Williams has made special reference to the work of Mr. Schock, the headmaster of the East Carnarvon School. Mr. Schock, in a project with his pupils, made a valuable addition to the Community Health Services records in Carnarvon with an anthropometric survey of the pupils among whom many are Aborigines.

SCHOOL MEDICAL EXAMINATIONS

1. Kimberley

The Report of Dr. R. M. Spargo covers the school medical situation in Kimberley:—

REGIONAL SCHOOL MEDICAL OFFICERS REPORT KIMBERLEY REGION

Dr. R. M. Spargo, M.B., B.S.

During 1972, the routine medical examination of school children in Kimberley became the responsibility of Community Health Services.

For local reasons which include the presence of certain endemic diseases peculiar to Kimberley and the very large full descent Aboriginal and mixed racial content of the involved schools, it was decided that all pupils at school were to be included in the annual school medical examinations.

For statistical purposes, an effort was made to establish the size of the full descent Aboriginals and mixed racial content of schools in Kimberley. To this end, pupils were classified in the following way :—

- (i) full descent Aboriginal (F.D.)
- (ii) mixed racial (C)
- (iii) European (E)

Difficulties are experienced in two ways in any attempt at ethnic breakdown in Kimberley :—

- (i) in deciding on full descent Aboriginal status at Beagle Bay Mission,
- (ii) in deciding upon a classification of mixed races in children of part European families.

Schools in Kimberley may be grouped according to situation, viz :—

- (i) Towns
 - (a) Wyndham
 - A. State School
 - B. St. Joseph's Convent
 - (b) Kununurra
 - A. State School
 - B. St. Joseph's Convent
 - (c) Hall's Creek State School
 - (d) Fitzroy Crossing State School
 - (e) Derby
 - A. State School
 - B. Holy Rosary Convent
 - (f) Broome
 - A. State School
 - B. St. Mary's Convent
 - C. Christian Brothers College
 - (g) Camballin State School

(ii) Missions

- (a) Balgo Hills
- (b) Kalumburu
- (c) Lombadina
- (d) Beagle Bay
- (e) La Grange

(iii) Stations

- (a) Go Go
- (b) Christmas Creek
- (c) Cherrabun

(iv) Islands

- (a) Koolan
- (b) Cockatoo

All schools have been visited in the Kimberley with the exception of those at Cockatoo and Koolan Island. The routine procedure carried out by the Department School Medical Officers was adhered to except :—

- (i) No test for hypermetropia or colour vision was made.
- (ii) Pediculosis capitis was not specifically looked for by this examiner ; although its presence was common. Community Health Nurses have been assessing and managing this problem throughout the year in their area of responsibility.

Referrals were made to the District Medical Officer or to the R.F.D.S. Clinic Flight Medical Officer as was the case, for further investigation and management. Except for Pediculosis Capitis and Hansen's disease, no therapeutic role arising out of the School Medical Examinations was undertaken by the Community Health Nurses.

With regard to Trachoma, it tended to be probably over-diagnosed among European and under-diagnosed among the Full Descent Aborigines. Although referred as Trachoma to the Medical Officer concerned, the diagnosis was not necessarily confirmed by him or routine trachoma treatment commenced. Dental Caries refers to frank usually multiple carious teeth obvious on gross examination of the oral cavity.

No distinction was made between deciduous and secondary carious teeth. It is my impression that a full D.M.F. survey by a qualified examiner would reveal a very high incidence of dental disease.

By Otitis Media is meant Chronic Suppurative Otitis Media where perforation in the majority of cases involves the entire tympanic membrane. Discharge varying from mucopurulent to catarrhal.

Cardiac Abnormality refers to cardiac bruit not considered at initial clinic examination to be innocent.

It did not appear possible to objectively collect data on undernutrition this year, however, next year, more attention is to be paid to nutritional anthropometry and percentiles among school children, although no definite standard of reference is available for children of Aboriginal descent in the Kimberley.

In assessing malnutrition, some discussion will be needed as a method. A few cases only of frank anaemia were found on clinical examination and I feel that the only sensible way to assess this adequately is by blood examination.

Contact in Hansen's refers to that situation where the index case is in direct or collateral descent relationship and has been in the Leprosarium although not necessarily having Lepromatous Leprosy.

SCHOOL PUPILS NUMBERS AND ETHNIC BREAKDOWN

F.D. = Full Descent Aboriginal
C. = Mixed Racial
E. = European

Schools	Official Roll	Pupil Seen	Ethnic Breakdown		
			F.D.	C.	E.
Wyndham State School	248	243	30	79	134
Wyndham St. Joseph's Convent	75	75	25	41	9
Kununurra State School	196	175	3	42	130
Kununurra St. Joseph's Convent	64	58	17	26	15
Halls Creek School	199	177	81	77	19
Fitzroy Crossing School	212	195	164	30	1
Derby State School	451	406	154	87	165
Derby Holy Rosary Convent	194	186	36	105	45
Broome State School	190	182	1	80	101
Broome St. Mary's Convent	180	174	23	146	5
Broome Christian Brothers College	60	55	7	47	1
Camballin School	17	16	9	2	5
Balgo Hills Mission School	76	76	76	....	....
Kalumburu Mission School	45	44	44	....	....
Lombadina Mission School	75	71	42	27	2
Beagle Bay School	122	120	62	58	....
La Grange Mission School	78	77	72	5	....
Go Go Station School	50	50	41	8	1
Christmas Creek School	34	34	28	3	3
Cherrabun Station School	20	20	15	4	1
Total	2,586	2,434	930	867	637

MORBIDITY STATISTICS

	Caries	Trachoma	Otitis Externa	Otitis Interna	Otitis Interna Bilateral	Cardiac Abnor- malities	Obesity
Wyndham State School	44	48	7	9	1	2	3
Wyndham St. Joseph's Convent	20	8	2	10	1	2	2
Kununurra State School	27	16	....	7	....	7	3
Kununurra St. Joseph's Convent	9	18	1	7	2	1	....
Halls Creek School	3	8	12	26	9	1	9
Fitzroy Crossing School	19	7	10	46	17	4	8
Derby State School	16	24	24	6	1	2	8
Derby Holy Rosary Convent	11	25	16	16	6	2	8
Broome State School	33	15	5	5	2	2	3
Broome St. Mary's Convent	54	17	9	8	2	1	8
Broome Christian Brothers College	5	....	3	4	....	....	....
Camballin School	2	2	....	1	....	....	....
Balgo Hills Mission School .....	....	17	....	25	17	5	....
Kalumburu Mission School	2	....	1	4	1	....	....
Lombadina Mission School	7	....	....	3	....	2	....
Beagle Bay School	2	....	4	12	6	2	3
La Grange Mission School	4	5	3	13	6	1	....
Go Go Station School	3	2	3	2	1	3	2
Christmas Creek School	3	6	5	2	....	1	....
Cherrabun Station School	2	7	....	3	2	....	....
Total	266	225	105	209	74	38	57

SCHOOL HANSEN DISEASE STATISTICS

	External Register	Internal Register	Contacts	History of Treatment	Treatment Ceased	Treatment Continued	Treatment Com- menced
Wyndham State School ....	....	1	3	2	5	1	4
Wyndham St. Joseph's Convent ....	....	1	22	3	2	2	1
Kununurra State School	1	....	2	1	1	1	1
Kununurra St. Joseph's Convent ....	....	....	7	2	2	1	....
Halls Creek School ....	....	1	9	9	3	....	6
Fitzroy Crossing School ....	....	....	22	7	4	....	2
Derby State School	2	5	80	17	4	9	7
Derby Holy Rosary Convent ....	....	2	37	7	1	2	1
Broome State School ....	....	1	13	1	3	2	1
Broome St. Mary's Convent ....	....	....	37	2	8	1	1
Broome Christian Brothers College	2	2	14	1	4	6	4
Camballin School ....	....	....	3	1	1	....	....
Balgo Hills Mission School ....	....	1	5	3	....	....	....
Kalumburu Mission School ....	....	2	31	18	6	1	2
Lombadina Mission School ....	....	....	14	3	3	....	....
Beagle Bay School	1	2	35	14	4	1	1
La Grange Mission School ....	....	1	10	6	9	3	....
Go Go Station School ....	....	....	7	3	....	2	....
Christmas Creek School ....	....	....	2	3	....	....	....
Cherrabun Station School ....	....	....	1	....	....	....	....
Total	6	19	354	103	60	32	31

2. Pilbara and Northwest

A community Health Services Regional Medical Officer, Dr. J. F. Williams, was appointed for the North West on 1st July, 1972. During 1972 there was no incumbent Regional Medical Officer for the Pilbara so Dr. Williams was requested to cover both regions. School Medical examinations were carried out at :—

Carnarvon ....	....	....	....	1,200 children
Onslow ....	....	....	....	200 children
Gascoyne J. ....	....	....	....	8 children
Useless Loop ....	....	....	....	43 children
Meekatharra ....	....	....	....	Figure not available
Karalundi ....	....	....	....	Figure not available
Cue ....	....	....	....	60 children
Wiluna ....	....	....	....	Figure not available

Any necessary referrals and treatment were instituted.

3. South of 26th Parallel

South of the 26th Parallel official school medical examinations are conducted by another Branch of the Department. However, on request at Kalgoorlie, Leonora, Mt. Margaret, Laverton, Geraldton, Narrogin, Pingelly and Coolbellup 7,965 school children were examined for pediculosis capitis.

LIAISON

An Aboriginal Affairs Co-ordinating Committee has been established in Perth at which Aboriginal representation meets with the Executives of all concerned Government Departments including the Public Health Department represented by Community Health Services. The first meeting was attended by Dr. Coombs. Sub-committees meet each month in regional areas.

Throughout the year close liaison was initiated and maintained with the personnel of other Government Departments, e.g. Community Welfare Department, Aboriginal Affairs Planning Authority, Education Department, State Housing Commission, Health Education Council, Mental Health Department, Shire Councils, Prison authorities, Police Department, Department of Social Services ; other medical personnel, e.g. general practitioners, local and district medical officers, hospital staff, other Branches of the Public Health Department, Silver Chain, East Kimberley Health Organisation, Royal Flying Doctor Service, chemists, Slow Learners Workshop ; voluntary organisations, e.g. kindergartens, Parents and Citizens Associations, Pensioners League, Women's Clubs, Citizens Advice Bureau, Good Neighbour Council ; clientele organisations, e.g. Carnarvon Aboriginal Advancement Association, Bunja Wallen Munga Centre, Derby Oombulgurri Association, Wyndham, Mandigarra Club, Geraldton, New Era Aboriginal Fellowship, Perth, Noongars Association, Gnowangerup, Noonga Girls Co-operative, Narrogin ; churches, missions and related institutions, private enterprise and private citizens.

On 20th October, 1972, an outstanding example of liaison and co-operation occurred on the lawns at 16 Rheola Street, West Perth, when New Era Aboriginal Fellowship Inc. presented the Minister for Health, the Hon. R. Davies, M.L.A., with a Holden Station Wagon for the use of the Public Health Field Nurse at Gnowangerup. Much of the vehicle purchase money was raised by the Aborigines themselves and due tribute should be paid to them for this tangible effort to help themselves.

At Gnowangerup the Public Health Field Nurse works in close co-operation with the Noongars Committee and has her office within the Aboriginal Centre building at the invitation of the Noongars. The close relationship between the Noongars, New Era Aboriginal Fellowship and Community Health Services should produce a great improvement in the health of the local Aborigines.

We wish to thank both executive and field personnel and other persons mentioned for their very gratifying co-operation which has helped to promote a team spirit in achieving goals common to all.

Records

Record collection has been constantly under scrutiny in 1972 with a view to establishing a co-ordinated system for Community Health Services staff throughout the State. There are many difficulties in such a project. For everyday purposes Public Health Field Nurses require working notes but at the same time it is essential to be aware of a client's background medical history. The environmental and field conditions of work cause an early deterioration of recording substances and any data carried. Weight of the data must be considered also.

Community Health Services bases require a data system referring to all the clientele in that area. These records require to include general growth and health parameters as well as past and current illnesses, long term treatments and immunisation status. There must also be a means of cross linking to hospital records. For statistical data for headquarters purposes a master data system is required in order to determine health parameters on a State basis and for research purposes and forward planning. Some form of computerisation is required at this level. From this system it may be required to furnish data at a National level. A major problem exists in data collection in that Registration Forms giving vital statistics do not indicate race. It is therefore very difficult to extract, for example, the number of Aboriginal deaths in 1972.

Running throughout is the problem of client identification which is made even more difficult than usual with regard to the Aboriginal population because of cultural and language differences.

In 1972 the Organisations and Methods Section of the Medical Department was requested and agreed to study the problem and attempt to find a solution. This work is still proceeding.

Also during the year a start was made on central computerisation of Hansen's Disease patients records. A system was devised for use with Hollerith cards which could be directly transferred to an electronic computer if one became available at a later date. An identification system including family relationships was also produced but is only suitable in its full state for an electronic computer being too elaborate for a card system.

Health data was conscientiously recorded by field staff with a view to its eventual admission to the master files. A system of recording medical examinations of clientele conducted on a mass basis was devised with a view to the above for early use in 1973 at Gnowangerup and other centres.

RESEARCH

The following projects were either carried out by or assisted by Community Health Services staff in 1972.

1. Soil samples for hookworm.
2. Haematological surveys.
3. A trial in the comparative effectiveness of Malathion 0.5 per cent. and G.B.H. in the treatment of pediculosis capitis.
4. Collection of audiometric data from children of the clientele for assessment of the necessity of special rural schools for deaf children.
5. A trial in the use of "Cleensheen".
6. Research in the use of Hansolar at Derby Leprosarium.
7. Submission through the Commissioner of Public Health to the Senate Enquiry into Aboriginal Health.
8. Geriatric survey in Kalgoorlie for the Public Health Geriatric Service.
9. Co-operation with Dr. Masters and Mrs. Mack in their investigation into nutritional deficiency.
10. Collection of "Bush Tucker" for analysis by the post-graduate students doing the Diploma of Dietetics at Royal Perth Hospital.
11. Co-operation with Community Welfare Department in a survey of living conditions in high rise buildings in a Perth suburb.
12. Co-operation with a District Medical Officer in an investigation of folate deficiency.
13. An investigation in conjunction with the Statistical Branch of the Public Health Department into the incidence and prevalence of parasite infestation over the past 12 years.

TRAINING

1. In-Service Training

- (i) All Public Health Field Nurses employed in 1972 undertook an Orientation Training Course of three weeks duration.
- (ii) In conjunction with the Child Health Branch, Community Health Services held a Nurses Conference at St. Catherines College in 1972. The Conference lasted one week.
- (iii) Dr. R. M. Spargo went to Manila for six weeks for a course in Malaria Control conducted by the World Health Organisation.
- (iv) Dr. Ann Troup and Miss Mary Reid attended the Group Leadership Seminar at Selby Clinic.
- (v) Dr. Holman obtained a Fellowship of the Australian College of Medical Administrators.
- (vi) Throughout the year, all Community Health Services staff were circulated with up to date educational material relevant to their work.
- (vii) Close liaison was maintained throughout the year between Community Health Services and the College of Nursing, Australia, in regard to the proposed Diploma Course in Public Health Nursing to commence in Western Australia in June 1973.

The Tutor Sister to be appointed by the College for the Course was employed by Community Health Services on an itinerant basis in order to provide her with wide background knowledge of requirements of operational field staff.

- (viii) Camp Nurses received instruction in first aid and household remedies.

2. Other Training

- (i) Lectures on Aboriginal Health, Tropical Diseases and the activities of Community Health Services were given by Community Health Services staff to :—
 - 1. The combined Matrons and Secretaries Conferences of the Public Health Department.
 - 2. The Health Surveyor's Conference.
 - 3. A group of Health Surveyors at Geraldton.
 - 4. Fifth year Medical Students.
 - 5. Two groups of Student Nurses at " Ngala ".
 - 6. Groups of Nurses at Royal Perth Hospital.
 - 7. Three groups of Refresher Course Nurses at Sir Charles Gairdner Hospital.
 - 8. Groups of Nurses at Kalgoorlie and Geraldton.
 - 9. King Edward Memorial Hospital Clinical Meeting.
 - 10. Swan Districts Hospital Clinical Meeting.
 - 11. Various Shire Councils.
 - 12. School and Child Health Staff.
 - 13. Staff of Irrabeena.
 - 14. The Students at the Nurse Aide Training School, Derby.
- (ii) Medical Students were employed on a temporary basis during their vacations to undertake research and participate in field activities.
- (iii) Assisted programmes in Community Health for Colombo Plan Students.
- (iv) Assisted other overseas medical personnel in regard to Community Health.

Other Activities

In 1972, Public Health Field Nurses and Regional Medical Officers performed many other activities than listed above. Some examples are :—

1. Flying Sister duties particularly at Wyndham.
2. Checking on station Royal Flying Doctor Service medical boxes.
3. Excursions on the “ tea and sugar ” train from Kalgoorlie along the Trans Australian Railway.
4. Encouraged and given aid in Subsidised Medical Scheme and Hospital Benefit enrolments and facilitated the general use of Social Security systems.
5. Undertaken projects in gardening, sewing, cooking and handicrafts.
6. Encouraged the formation of sporting clubs and music groups etc. for the social advancement of the clientele.
7. Located people for hospitals and other agencies.

REPORTS

Reports were received from field staff each month throughout 1972. The Nursing Supervisor provided two special reports and an Annual Report. Regional Medical Officers provided Annual Reports and several special reports.

Miss Reid's report follows and further demonstrates the excellent work of the Community Health Services Nursing staff.

1972 Statistics

The general population of W.A. rose from 1,030,469 in Mid 1971 to 1,053,182 in mid 1972. (Bureau of Census and Statistics). There is no available figures for the increase in Aboriginal population. In order to derive a set of Aboriginal population figures it was assumed that the percentage increase in Aboriginal population was the same as for the general population per 5 year age group.

The 1971 Aboriginal population pyramid was increased by a factor of 0·022 to give an estimate of the 1972 Aboriginal population pyramid.

TABLE 10.—WESTERN AUSTRALIAN HOSPITALS, 1972

I.C.D. Category	AGE GROUPS AND RACE															
	Principal Condition															
	0-4		5-9		10-14		15-19		20-24		25-29		30-34		35-39	
	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA
000-136	318.1	26.6	34.3	9.1	15.8	5.4	18.4	5.9	21.1	6.3	17.1	5.6	13.7	4.5	19.7	3.7
140-239	1.9	1.3	1.8	1.2	1.0	1.2	1.4	2.2	1.3	2.9	0.6	3.3	5.0	4.2	3.5	5.5
240-279	25.0	4.2	0.9	0.5	0.5	0.5	0.3	0.7	3.0	1.0	5.0	1.3	3.7	1.2	12.0	1.9
280-289	8.2	1.1	7.0	1.4	4.8	1.0	2.1	0.5	2.6	0.4	3.9	0.4	2.5	0.5	1.4	0.6
290-315	2.3	1.5	0.9	0.3	1.5	0.7	5.5	2.3	6.5	4.0	7.7	4.3	16.8	4.8	12.7	5.8
320-389	108.8	13.5	41.2	10.0	27.8	5.3	19.7	3.9	12.9	5.0	11.0	4.7	19.9	6.0	19.7	6.7
390-458	1.6	0.4	2.0	0.8	4.8	0.7	4.2	1.2	6.0	2.7	7.7	4.0	6.9	7.2	13.4	9.5
460-519	434.5	61.1	85.6	46.3	39.6	19.5	39.8	15.7	35.3	13.6	31.9	13.3	28.7	11.2	67.6	8.9
520-577	21.2	12.1	14.1	16.4	6.5	15.8	13.2	19.3	12.5	21.1	12.7	18.4	22.4	16.7	25.3	12.3
580-629	10.3	5.3	6.4	3.4	6.5	3.5	29.4	10.8	31.0	25.4	39.6	37.5	23.1	43.8	17.6	43.6
630-678	...	...	...	...	6.6	0.9	297.7	79.6	333.3	239.8	269.4	224.8	157.9	111.2	136.5	47.0
680-709	70.3	5.0	40.5	3.7	20.8	3.5	19.0	5.8	17.2	5.7	19.8	4.8	24.3	4.6	18.3	4.2
710-738	3.5	1.5	5.9	1.9	4.0	2.5	1.7	4.5	5.2	6.3	7.7	6.3	8.1	8.1	12.0	10.2
740-759	8.4	7.0	2.6	3.4	1.3	2.0	0.7	1.3	...	1.0	...	0.7	...	0.7	...	0.6
760-779	9.7	5.4	...	...	...	...	...	...	...	...	...	...	...	...	...	...
780-796	81.6	19.1	35.0	10.6	21.0	8.4	27.0	9.4	35.7	11.2	35.2	11.9	48.0	11.6	37.3	12.6
N800-N999	71.1	29.1	48.2	19.4	28.6	20.5	57.1	36.0	103.8	35.0	94.7	26.9	81.6	23.7	116.8	22.4
Y00-Y89	32.8	9.5	3.5	3.7	3.5	2.7	26.3	7.7	38.3	17.3	27.0	20.8	21.2	19.2	22.5	15.4
Total	1,209.3	203.7	330.0	132.2	191.1	93.6	411.7	165.9	500.4	273.4	448.5	268.5	402.5	221.0	464.5	189.7
Population by age group	5,146	109,005	4,543	102,969	3,992	105,576	2,888	96,760	2,322	93,171	1,817	84,452	1,605	70,373	1,431	61,688
Female population by age group	...	...	...	...	1,980	51,377	1,414	47,008	1,170	44,412	865	39,259	779	33,451	6.4	29,663

* Rates based on female population only.

AGE GROUPS AND RACE

[illegible]

* Rates based on female population only.

TABLE 11—WESTERN AUSTRALIAN HOSPITALS 1972

Ratio of Aboriginal to Non-Aboriginal Rate per thousand Population at Discharge by Principal Condition and Age Group

I.C.D. Category	Principal Condition	Age Groups											1972 Total	1971 Total				
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54			55-59	60-64	65-69	70 +
000-136	Infective and Parasitic....	12.0	3.8	2.9	3.1	3.3	3.1	3.0	5.3	4.3	3.2	4.6	3.6	7.9	6.4	4.2	9.7	12.3
140-239	Neoplasms	1.5	1.5	0.8	0.6	0.4	0.2	1.2	0.6	0.8	0.9	0.5	0.4	0.1	0.6	0.1	0.4	0.3
240-279	Endocrine, Nutritional, Metabolic	6.0	1.8	1.0	0.4	3.0	3.8	3.1	6.3	3.2	6.0	6.2	8.9	5.3	4.5	1.7	4.3	4.5
280-289	Blood and Blood Forming Organs	7.5	5.0	4.8	4.2	6.5	9.8	5.0	2.3	2.1	1.4	2.2	1.4	0.0	0.9	0.0	4.2	2.9
290-315	Mental Disorders	1.5	3.0	2.1	2.4	1.6	1.9	3.5	2.2	2.5	1.6	1.8	1.2	0.4	0.2	0.6	1.4	1.3
320-389	Nervous System and Sense Organs	8.1	4.1	5.2	5.1	2.6	2.3	3.3	2.9	4.1	2.5	1.6	2.6	2.9	2.9	1.3	4.7	5.1
390-458	Circulatory System	4.0	2.5	6.9	3.5	2.2	1.9	1.0	1.4	1.6	1.3	1.9	1.3	1.4	0.8	0.6	0.9	0.9
460-519	Respiratory System	7.1	1.8	2.0	2.5	1.9	2.4	2.6	7.6	7.2	6.4	6.3	3.6	4.2	2.8	2.4	5.2	4.9
520-577	Digestive System	1.8	0.9	0.4	0.7	0.6	0.7	1.3	2.1	1.2	1.0	0.9	0.4	0.3	0.6	0.4	0.8	0.8
580-629	Genito-Urinary System	1.9	1.9	1.9	2.7	1.2	1.1	0.5	0.4	0.6	0.6	0.5	1.9	1.1	0.7	0.7	0.9	0.9
630-678	Pregnancy and Childbirth* .....	....	....	7.3	3.7	1.4	1.2	1.4	2.9	2.6	4.8	....	....	....	....	....	1.8	1.8
680-709	Skin and Subcutaneous Tissue	14.0	10.9	5.9	3.3	3.0	4.1	5.3	4.4	6.5	4.2	4.1	2.5	4.1	4.1	1.8	6.3	7.1
710-738	Musculoskeletal System	2.3	3.1	1.6	0.4	0.8	1.2	1.0	1.2	1.0	0.8	1.1	0.9	0.9	0.5	0.4	0.8	0.9
740-759	Congenital Anomalies	1.2	0.8	0.7	0.5	0.0	0.0	0.0	0.0	5.8	0.0	3.0	0.0	0.0	0.0	0.0	1.2	1.2
760-779	Perinatal Morbidity	1.8	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.8	2.3
780-796	Symptoms and Illdefined Conditions	4.3	3.3	2.5	2.9	3.2	3.0	4.1	3.0	2.8	2.1	2.7	2.6	3.2	2.7	1.6	3.2	3.8
N800-N999	Accidents, Poisoning, Violence	2.4	2.5	1.4	1.6	3.0	3.5	3.4	5.2	3.7	6.8	4.0	3.5	2.8	1.3	2.0	2.7	2.8
Y00-Y89	Supplementary Classifications....	3.5	0.9	1.3	3.4	2.2	1.3	1.1	1.5	1.1	0.9	1.1	1.1	0.4	0.2	0.7	1.7	1.4
	TOTAL 1972	5.9	2.5	2.0	2.5	1.8	1.7	1.8	2.4	2.3	2.0	2.2	1.9	2.0	1.5	1.0	2.6	2.7
	TOTAL 1971	6.1	2.6	2.4	2.2	1.7	1.9	2.4	2.6	2.4	2.1	2.1	2.1	1.9	1.4	1.1	2.7	2.7

* Rates based on female population only.

TABLE 12.—RATES PER THOUSAND OF POPULATION OF PATIENT DAYS SPENT IN
W.A. HOSPITALS IN 1972 BY RACE AND PRINCIPAL CONDITION

I.C.D. Category	Principal Condition	Aboriginal bed days 1,000 pop.	Non- Aboriginal bed days 1,000 pop.	Ratio A/NA bed days 1972	Ratio A/NA bed days 1971
000-136	Infective and Parasitic	904	50	18·080	18·000
140-239	Neoplasms	67	99	0·677	0·510
240-279	Endocrine, Nutritional, Metabolic	156	32	4·875	6·800
280-289	Blood and Blood Forming Organs	35	10	3·500	5·000
290-315	Mental Disorders	38	58	0·655	0·560
320-389	Nervous System and Sense Organs	503	70	7·086	6·086
390-458	Circulatory System	241	206	1·169	0·792
460-519	Respiratory System	1,087	152	7·151	6·279
520-577	Digestive System	147	146	1·006	0·917
580-629	Genito-Urinary System	144	122	1·200	1·350
630-678	Pregnancy and Childbirth	363	204	1·779	1·581
680-709	Skin and Subcutaneous Tissue	297	40	7·425	7·609
710-739	Musculoskeletal System	82	99	0·828	0·706
740-759	Congenital Anomalies	47	15	3·133	2·214
760-779	Perinatal Morbidity	43	8	5·375	5·700
780-796	Symptoms and Illdefined Conditions	344	119	2·890	4·480
N800-N999	Accidents, Poisoning, Violence	502	193	2·601	4·480
Y00-Y89	Supplementary Classifications	194	45	4·311	2·225
		5,194	1,666	3·118	2·956

Maternal Mortality

In 1972 there were 3 maternal deaths, of which one was an Aboriginal. This is the same figure as in 1971.

Infant Mortality

At the time of writing this report no figures are available for Aboriginal Infant Mortality in 1972.

CONCLUSION

In conclusion I wish to thank all members of the staff including those in the Administration Section for their enthusiastic help and support throughout a most trying year. I also wish to thank all the other people and organisations who helped us in 1972.

Community Health Services

Nursing Section

Miss Mary Reid, Nursing Supervisor

INTRODUCTION

This is a report on the work undertaken in 1972 by the Nurses employed by Community Health Services.

The year took off on a flying start with Community Health Services being formed, and Dr. Lawson Holman was appointed as Senior Medical Officer. I returned from New Zealand and Fiji in December and immediately took up my appointment as Nursing Supervisor. Before I had time to plan my work, new staff were awaiting orientation. Despite the absence of chairs for new staff members, a typist, telephone, office equipment and a suitable office, work began and proceeded to gather momentum.

Nursing Status		1st Jan. 1972	31st Dec. 1972
Public Health Field Nurses	....	18	31
Public Health Nurse Aides	....	2	6
Public Health Assistants	....	1	4

Resignations—Kununurra 3, Termination 1, (reliever).

New Areas Opened Up During the Year.

Balgo Hills	Gnowangerup
Balga	Moora
Fremantle	Kalgoorlie
Midland Junction	Leonora
Collie	

The formation of Community Health Services meant that the Public Health Nurses working with Aborigines in various parts of the State were incorporated into the new Service. Shortly before this occurred their salary award was amended, and in addition to receiving a substantial increase in pay, their title was entended to “Public Health Field Nurses”. Although this title is cumbersome, it has been an advantage as the former title lead to a certain amount of confusion, due to the fact that a variety of nursing positions exist within the Public Health Department.

The overall aim of Community Health Services is to upgrade and maintain health through the process of education, and prevent illness in persons in low socio-economic circumstances. Integrating the Public Health Field Nurses into this Service did not alter their basic nursing role of providing a comprehensive preventive nursing service to the whole family. Despite this, the blending of the aims of Community Health Services and the Services’ targets for 1972 into the nurses’ already over-loaded schedules called for considerable re-adjustment and extra work.

THE NURSING SERVICE IN RELATION TO THE TARGETS AND AIMS OF THE SERVICE.

The aims of Community Health Services and our targets for 1972 are dealt with in detail in the Branch’s Annual Report along with the associated hard data. I will not repeat these things. Instead, I will try to give an idea of the role of the Nursing Supervisor and the role of the Public Health Field Nurses in relation to the achievement of these targets and illustrate some of the methods used and some of the problems encountered.

It should be borne in mind, when reading this report, that the situations described here, and the hard data recorded in the Branch report, were extracted from a reluctant matrix. Public Health Field Nurses work in an unstructured arena—and situations rarely duplicate themselves.

THE ROLE OF THE NURSING SUPERVISOR

Planning

Participating in the overall planning for the Service and co-ordinating the Nursing activities into these plans formed part of my work.

This planning had to be done in accordance with the finance available. The latter was an unknown quantity for most of the year. Consequently, several alternative general plans were drawn up so that realistic steps could be taken when finance came to hand.

The lack of a firm commitment regarding finance meant that we did not know how many new areas could be opened up. This led to the unsatisfactory situation where nurse applicants were kept on the waiting list for extended periods until the position in each case was clarified.

Targets

When the 1972 Targets were first distributed a Statewide shudder went through the Service. There was a general feeling of uneasiness among our Nurses because, although they could see the need and value of achieving such Targets on a Statewide basis, they were worried that such clearly defined targets might overshadow intrinsic, but vitally important things, such as changes in attitude, client's self esteem etc. I think that all these fears have been allayed.

With so many variables in work situations around the State a common target helped to consolidate the Nursing Service. It also helped to clarify the specific differences between areas.

Recruiting

Recruiting, interviewing and pre-selecting staff has been a major task throughout the year. We had an encouraging response to our advertisements for staff. Each time the Service advertised in the "West Australian" a similar advertisement was placed in the leading newspapers in all the other States. Applications came, and appointments were approved from various States. It has been of great interest and value gaining staff with a variety of backgrounds and experiences. They have brought with them their accrued international experience and this Service is richer for it.

A question, frequently asked, is why does the Service require as pre-requisites, General, Midwifery, and Child Health Certificates or an equivalent combination, when more often than not the Sisters out in the field appear to undertake only the most basic nursing tasks.

This question is difficult to answer concisely. However, there are three main points to be considered :—

Firstly, most Australian trained nurses do not study the normal child or normal child growth and development until they undertake their Child Health training. Prior to that they focus on disease and the abnormal. The children with whom Public Health Field Nurses work are exposed to risks and obstructions to their development and it is common sense to have the expertise right where the problems arise. With the Aboriginal Infant Mortality Rate being what it is, this policy must be worth a try.

Secondly, the health of the Aboriginal people is inextricably caught up in a complex set of social, cultural, political and economic problems—and the Public Health Field Nurse needs to be a sensitive observer of the interplay between family and community.

Thirdly, these nurses frequently work in geographical isolation and are constantly required to make responsible, far-reaching decisions. A higher education facilitates this aspect of their work.

When designating staff to an area, considerable thought was given to trying to match the nurse to the area and vice versa, so that their reciprocal needs were met. Although this 'matching' has sometimes caused a delay in establishing or reinforcing the nursing service in an area, it appears to have proved worthwhile because the only area where there has been any resignations is Kununurra—which had three.

Orientation of New Nurses

This has been an especially important aspect of my work. The length of time each nurse spends in orientation varies, but it averages about three weeks.

The primary aim of orientation is that by the time the new Nurse begins work in the field she feels she is a member of an organisation, even though she may be from interstate or overseas and her nearest colleague is several hundred miles away. Hopefully, an integral part of orientation is that the Nurse embraces the aims and policies of the Service. One would like to think that staff feel they are actively involved in building up this new Service and that each one has a valuable contribution to make. In order to do this, they must feel free to question and discuss any and every issue in regard to their work.

Because of the physical distance between staff members and the pressures of work, it is desirable that this open communication is established during orientation.

The other important aspect of orientation is that the new Nurses meet representatives from the various agencies with whom they are likely to be dealing when they are in the field, e.g. Special Treatment Clinic, Perth Chest Clinic.

This promotes reciprocal understanding of one another's roles and makes subsequent communication easier. There is no set pattern for these appointments as the places visited depend on the individual nurses' background (interstate, overseas or local girls); and on the area she is designated to work (tropics, metropolitan, and so on).

Nursing Standards

Maintenance of nursing standards is part of nursing supervision. It has been necessary to rely heavily on the nurses' personal integrity, education and experience to maintain desirable standards, because for geographical reasons direct supervision can only be intermittent. In addition to this, maximum responsibility has been delegated to nurses to enable decisions to be made as close to where the action is needed as possible; in consultation with their Regional Medical Officer where desired or required. The format for the monthly reports was drawn up with this in mind. In these reports, the nurses comment and submit figures under each of the 17 Service Aims and also add any additional comments and details they consider relevant. The report is then sent to their Regional Medical Officer who adds comments in the specially wide margin, and takes any action he/she considers appropriate. The report is then forwarded to Head Office for review by the Senior Medical Officer and Nursing Supervisor. They add their comments and take any further action required. When this is completed a photostat copy is sent to the Regional Medical Officer and the Public Health Field Nurse concerned and the original is filed at Head Office. Although there are problems attached to this system it is the best I have been able to innovate (with the minimum amount of writing) to keep the appropriate people up to date with what is happening in the field, the action taken or needed, and any relevant thoughts, ideas or suggestions that may be of value. This also encourages collaboration between Field Nurses and the Regional Medical Officer. Prior to this the Nurses reports went directly to the Nursing Supervisor. I felt that method could have divided the Service into Nurses and Doctors instead of into Regions.

I visited the following areas and environs at least once during the year.

Wyndham	Halls Creek
Kununurra	Fitzroy Crossing
Port Hedland	Derby
Roebourne	Broome
Carnarvon	Geraldton
Katanning	Mullewa
Pingelly	Narrogin

Following each visit to the Field Nurses I have submitted a written report to the Commissioner of Public Health, Principal Matron and Senior Medical Officer, Community Health Services.

Developing Staff Potential

Some specific work has been done in the development of potential of certain individual members of the staff. I would like to enlarge this aspect of my work in the future. Printed articles relevant to their work have been circulated throughout the year to the Nursing Staff.

A Conference was held in Perth in August, but this was not a great success. The Nurses felt they did not have enough time to discuss their work situation among themselves. The Service has a wealth of knowledge, experience and ideas among its field staff. It seems unfortunate that these ideas were not shared and explored more fully. The Conference concluded with the majority of the staff members succumbing to influenza.

Evaluation

Evaluation of the professional processes, nursing and nursing administration has not been undertaken to date but will need to be undertaken very shortly. Although the various roles are beginning to consolidate there is constant change and growth in the Service, and this, combined with lack of facilities would make present evaluation difficult, time-consuming and of little value in the end, because much of it would be out of date. I have had to rely heavily on my impressions.

Liaison

Liaison with all other concerned bodies has been a top priority on my work. At the beginning of the year I spent a great deal of time establishing or renewing acquaintances with personnel from numerous organisations, both statutory and voluntary, and, where applicable, introducing them to the Senior Medical Officer and the South West Medical Officer.

Being part of a new organisation meant the additional task of creating an awareness of the aims and functions of the Service with other agencies, as well as establishing communication with individual members of their staff. Throughout the year I have received an increasing number of requests to talk to various groups either about the role of the Public Health Field Nurse or about the role of Community Health Services. I accepted all of these invitations.

Staff Morale

Maintaining staff morale has been a major task at times. One of the factors which has emerged very clearly as this branch of nursing has evolved is that it is lonely work. This can be due to geographical, cultural, or professional isolation. The latter seems by far the most common cause of sagging morales. Finding that the concept of family orientated preventive nursing tends to be regarded with a collective squint by work associates is discouraging ; it is part of the Public Health Field Nurses work to modify such attitudes when they prevail. This takes time and nervous energy, and as the weeks go by, the nurse often feels quite desperate to talk things over with someone of kindred spirit, someone who can reassure her and reinforce her ideas.

Another cause for despondency is the tendency for nurses to find that their work has snowballed beyond all expectations and there is no-one to share the load.

THE ROLE OF THE PUBLIC HEALTH FIELD NURSE

It is worth noting that although these nurses can usually see what needs to be done, and plan accordingly, they all find from time to time that success runs one step ahead due to the fact that they are bogged down by some very ordinary obstacle. Obviously this situation is not unique to Public Health Field Nurses but it is highlighted in their work because the goals they are striving for would have a beneficial effect on an extremely needy people, and it seems incongruous that such plans are sometimes disrupted by remarkably mundane problems.

Pablo Picasso is reputed to have said "...when art critics get together they talk about content, style, trends and meaning. But when painters get together they talk about where you can buy the best turpentine ". When Public Health Field Nurses get together they tend to talk about such things as how to stop the grasshoppers eating their record cards, how to feed a family in the intervening weeks between applying for and receiving social services, how to charm a malevolent pet donkey that is standing between oneself and ones car door : and various other necessary tricks of the trade.

This does not mean that they disregard the trends, meanings and goals of their own Service, and it does not necessarily mean that they disagree with what the critics have to say, it just means that they have to contend with these humdrum frustrations if they are to achieve their targets. Quite frequently these problems necessitate an excursion into what appears to be an unrelated field, and bystanders may well wonder " what on earth has that to do with nursing? "

In order to be effective in this work the Public Health Field Nurse has to devote a great deal of time and thought towards discovering where on the continuum of health the education and socialising of the individual client occurs. Where does she have to meet him in order that he can understand and incorporate her teaching into his way of life? And where does she have to meet his brother? And his sister? Is this teaching going to cut across their cultural patterns?

Ideally, when she finds the answer to this she then adjusts herself to his speed and the long slow process begins as he progresses, regresses and progresses towards a healthier pattern of living.

Nutrition

The problems encountered in trying to achieve nutritional targets are legion. The following extract from a Nurses Report gives some insight into how a rural nurse tackles the problem.

“ Mr. Banjo Wooroommurra, with two helpers, prepares and cooks meat and vegetable stew, rice and damper spread with marmite, the children walk from the school to the camp ; and in addition each child is given an apple or orange and milk biscuit and sent back to school. Textured Vegetable Protein is added to the school lunches and also to the patients meals at the hospital ”

Immunisation of Target Population

Whether the Nurse conducts the immunisation clinic or a mobile immunisation van visits her area, or the local shire conducts immunisations, she is required to alert the families with whom she works to the value of the facility. Apart from letting them know that immunisation day is approaching the sister usually has to ascertain which members of the families are due for which immunisation. She is expected to talk with the people so that they appreciate the value of immunisation, and to discuss the subject to find out their attitude towards immunisation.

Have they availed themselves of the facility in the past? If not, then she should tactfully elicit why not. When the latter is established the nurse collaborates with the families concerned to enable them to work through their problems. The most common practical problem encountered in relation to people using the service of the immunisation van is the general lack of transport facilities available to them.

This problem is further highlighted when the van is in town for only half an hour or so. They do not have a second family car, and they do not have bus services. The distance to be covered may be a reasonable walking distance for an adult but, when infants and toddlers and inclement weather have to be considered, the distance often becomes unreasonable. If the Nurse can find a practical solution to the transport problem, she's won half the battle.

Immunisations frequently have to be deferred because children in our target populations have chronic and recurrent illness. This makes it very difficult to achieve full immunisation status for some children ; especially when the alternative is going to cost the parents several dollars.

In areas where the Nurse actually gives the immunisation there are additional responsibilities involved. Here nurses have to order syringes and vaccines in advance, collect them from the airport and store them. From time to time staff complain of such things as vaccines being off-loaded at the wrong airport and/or being left in the sun and similar misfortunes.

The Single Side Band Radio has been of great assistance in overcoming the difficulty of achieving full immunisation records.

Health Education and Hygiene

Although this has a separate heading it is an integral part of all work done by the Public Health Field Nurses. For this reason it is difficult to write about it in isolation. In order to be in a position to disseminate the necessary information and, where necessary, to motivate the recipients to a different or improved attitude towards the problems at hand, the nurse must have established herself with the families with whom she works so that there is mutual trust and respect.

It is only then that her advice will be valued. Throughout the course of a day's work the Public Health Field Nurse has many opportunities for informal health education and hygiene teaching. It is possible and desirable to utilise these opportunities without giving a formal teaching lesson.

The concept of prevention of ill health is easier to grasp and practice in comfortable surroundings. In such surroundings one can conceptualise and hypothesize to one's hearts content. It is a different matter when one is situated in a sub-standard, overcrowded surroundings and harassed by the everyday crises of drunken brawls, dog fights, dog bites, respiratory distress, diarrhoea, no money, no food, squabbling children, cut feet and so on.

Most people in low socio-economic circumstances are preoccupied with the present. For this reason it is of dubious value to give health education which requires them to conceptualise the value of preventive health measures.

Although the majority of health education is done informally some formal instruction does take place. e.g. :—

Extract of Public Health Field Nurse Report, November, 1972

“ During November we had two films on loan from the Family Planning Association of Australia. One was a Walt Disney production, starring Donald Duck and the other called ‘ Kirrathimo ’ telling the story of a model training village in Kenya. Before being shown generally they were discussed with the elders and councillors on the Reserve who were invited to a preview. They all attended at the appointed time, at the Youth Centre. We gave them a brief outline of the films, asking them to note particular sections. At the end we had a brief discussion and approval was given by the Elders for general showings.

“ On the night the films were shown one of the Elders, Mr. Freddie Johnson, informed us that after the films he was going to talk to the people, and they had to listen to him. This he did, very well, pushing the message further home, relating family planning to better health, child care, and improved education. With his permission, we taped his oration which makes very interesting listening. These films were also shown to a general audience at Mowanjum, and later to the teenage girls at Mowanjum, followed by discussion of the reasons for good family planning, and why the girls should be thinking about it now, in preparation for marriage. Included in this was child care ”

Disease and the Public Health Field Nurse

The nurse working in the community is in contact with a wide range of diseases, among which are the endemic and infectious diseases. Unlike the hospital situation, the patient rarely comes under the community nurses eyes already labelled with a diagnosis by the doctor, because the community nurse is usually the primary point of contact for health care.

This is a Statewide situation and related to all disease whether social, endemic or infectious. In the far North, where Hansen's Disease is a major undertaking, the Public Health Field Nurses have had to assume higher levels of responsibility and surveillance than is usual for nurses in this country. This is particularly so where nurses are required to make a preliminary diagnosis in order to decide whether or not a patient should be transported long distances to a doctor or hospital. Surveillance and control of Hansen's Disease remains time consuming and demanding for the nurses in the Kimberley.

However, the time spent on this disease has paid dividends, despite the obstacles the nurses have had to overcome in the process, e.g. one client was recently found to have some strange tablets in an Aspirin bottle—the Field Nurse had them checked and they were identified as Ismelin. (“ Didn't know *he* was on Ismelin.”) Further checking revealed that he wasn't on Ismelin, he had won them gambling—unfortunately he had lost his Hansen's Disease tablets in the same way. Such incidents are not uncommon since the advent of Drinking Rights.

Another problem which demanded a great deal of our Nurses time and patience was pediculosis capitis. This was particularly obvious in the Southwest where, although they were not directly concerned with School medical examinations the Public Health Field Nurses found themselves becoming increasingly involved with this condition. This is one of the many problem areas health surveyors have proved themselves to be staunch allies.

Trying to see that persons with V.D. receive appropriate treatment is a major task throughout the State. In some centres a proportion of the General Practitioners appear to be unaware or unconcerned that V.D. is a problem in their area.

When this attitude prevails the nurse has the dual problem of deciding what she can or should do about persons requiring, but not receiving treatment ; and secondly, she has to develop a working relationship with a doctor who sees the V.D. question in such a different light.

In areas outside the Southwest the Public Health Field Nurse, under direction, sometimes gives the course of injections. Although this ensures the patient receives the full course of injections, and that any contacts are also located, it has the disadvantage of restricting the Nurses work schedule.

Trachoma

In areas where the Public Health Field Nurse undertakes the Trachoma treatment there is a reasonable understanding about the disease by the clientele. Most understand that if one doesn't receive treatment from time to time one may go blind in later years. Sadly, most people in these areas have in their midst a blind person who did not have the opportunity to have treatment in his youth. This person unconsciously acts as a reminder to them. Treatment for Trachoma does not come under Community Health Services' direction in the South West.

Gastro-enteritis

With regard to gastro-enteritis, it would appear that one of the biggest problems for nurses to overcome is the depressingly high percentage of artificially fed babies discharged from hospital to a poor environment. This is tragic.

It is part of Community Health Services policy to encourage Aboriginal women to have their babies in hospital, on the assumption that it is in both mother and baby's best interests. Some of the benefits are counteracted by the fact that all too often the baby is discharged from hospital "on the bottle" with the inevitable results.

Minor Illness, trauma, etc.

This has continued to be an excellent meeting point for the Nurse and the families in her care. It presents a pleasant, casual, non-crisis situation. It is repetitious, easy to copy, shows results and offers an opportunity for exchange of other information, and general consolidation of the essential bond that exists between the nurse and the recipients of health care.

It is frequently in the midst of these simple procedures that an individual will unburden himself of his problems to the nurse. When this occurs it is important for the nurse to listen. For this reason it is desirable that the nurse tries to retain a flexible programme.

In this field the nurse works on the principle that she only undertakes those tasks which the clients can observe and copy. More sophisticated tasks are, where possible, left for hospital personnel to undertake. There are three reasons for this simplified line. The observer, often illiterate, does not feel overwhelmed by the nurse's competence and therefore feels quite capable of copying her. The client learns what can be handled at home and what should be referred to a doctor. General Practitioners cannot feel that the nurse is usurping their work. These simple procedures, which usually only utilise items which can be bought in the local shops, can be instigated and continued by the Nurse Aides, Nurse Assistants or Camp Nurses.

The Camp Nurses are responsible Aboriginal women who have agreed to undertake some of the basic nursing tasks in the absence of the field nurse. The role of Camp Nurse became functional in 1969, and on the whole these women have shown an exceptionally responsible attitude towards the work. It should be borne in mind that they are often illiterate and have to keep their simple but bulky supplies out of the reach of the ever present inquisitive children.

Dependency Prevention

The most constant aspect of this target is for the nurse to regularly ask herself if any of the people with whom she is working are becoming dependent on her. Is she, for example, making decisions for people who are capable of making their own decisions? Determining where dependency should be discouraged can be difficult ; there can be so many factors to consider.

Extract from Public Health Field Nurse Report

".....In this area, we have one diabetic administering her own Insulin. Supplies of needles etc., are given to her monthly with her 'pill'. She sometimes forgets but, on the whole, keeps her monthly appointment for a routine check quite well.

" We also have a paraplegic woman cared for fairly well by friends and relatives plus much support from Community Health Services. What started out as a weekly visit has unfortunately, developed into daily support, as there has been some breakup of the family unit. The living conditions are overcrowded and far from satisfactory, but, all being well, a specially adapted home should be arriving soon for this woman, provided by Community Welfare Department. The patient has spent many months in Shenton Park Hospital, and has been taught how to care for herself and her home from a wheelchair...."

Another case needing much support is a 9 year old boy with Duchén's Muscular Dystrophy. The family are established in a Type 5 house, and we think the mother appreciates that his condition is progressive. He has had physiotherapy at the hospital, with instruction given to the mother. He attends and enjoys kindergarten at the Community Centre....."

Child Development

Children growing up in poor social and economic circumstances inevitably have many factors acting against them. The Public Health Field Nurse working with these families is, because of her close and continual relationship with them, in an ideal situation to observe child development. (This is over and above any weighing and measuring she may do.) In the course of her visits to the home, the Nurse can observe the mother-child relationship as well as the other relationships in the household. e.g. If they live in a high rise flat, are the children receiving the stimulation they require? Is there somewhere downstairs to play? Is the mother listless, restless, withdrawn, depressed and so on?..In the camp situation similar observations are to be made. Cultural influences have to be remembered when making these observations.

Neglected children are to be expected and should be looked for in a community which is poorly educated, confused and given to drinking and gambling. It is worth noting that there appears to be a subtle difference between the neglected Aboriginal child and the neglected European child. The former tends to be just that, i.e. neglected, whereas the latter may have punitive measures or cruelty superimposed on the neglect.

Extract from Public Health Field Nurse Report

“.....The child was horrified when I used a match as a swab stick. He thought I was going to burn him. His mother had previously burnt him to stop him playing with matches. It took considerable time to win the child over and eventually do his dressings with his consent.....”

The immediate effect of alcohol on Aboriginal people is all too obvious and unattractive ; the long term effect is also cause for concern. One aspect in particular worries me. I suspect that heavy drinking by Aboriginal parents is contributing to the fact that a large number of children are being kept in hospital for lengthy periods of time. One wonders what the long range effects will be on the Aboriginal society when so many babies and children are spending weeks and months in hospital with no mother figure with whom to relate. If one accepts that the basis of trust and warmth is established in the early months of life, one cannot help but feel concerned about the future personalities of these children who spend such long periods in hospital. The Aboriginal people's warm lovable nature has been a definite advantage to them in the past, and it would be a shame to contribute to the lessening of this characteristic charm.

Apart from this thought, I also consider it is wrong to deny these mothers the care and responsibility of their small children. No-one would pretend that they are all efficient mothers—but surely it is healthier all round to give increased support and guidance to the family unit in the community, than to fragment the family, institutionalise the child and expose him to cross infection and emotional deprivation. Furthermore, although he is unlikely to be rejected when he eventually returns home, the family must inevitably become used to not having this child at home and he is likely to find there is no longer a “ place ” for him in the family circle.

This general situation calls for a great deal of skill in interpersonal relationships on the part of the nurse. While remaining aware of the “ at risk ” situation to which the child, or children are exposed she must accept the parents as persons worthy of respect and believe them to be capable of upgrading their current pattern of living for the benefit of their family ; it is necessary for her to consciously avoid judging the parents by her own standards.

Extract from Public Health Field Nurse Report

“.....An extremely time consuming case occurred with a phone call from a client stating that his wife had left him, taken the children and he didn't know where to start looking for her. He was depressed and thought he might do something stupid, and would I call. I found him sitting in an old wooden chair (his wife had sold most of the furniture). He was weeping and very depressed. This man is an alcoholic, who up to that time would not admit this. He now wished to try A.A. and Marriage Guidance. I persuaded him to consult his doctor who prescribed some tranquillizers. However this had little effect.

“ He became more brooding and handed over twelve bottles of tablets varying from Valium and Mogadom to Dindevan, believing he might take an overdose. Coincidentally he had recently been treated for a stomach ulcer. He also requested psychiatric help. I reported this to his General Practitioner and was asked to get the man an appointment at Sir Charles Gairdner Hospital. We were fortunate in getting an appointment that afternoon. The Professor advised the client to go to Graylands as an informal patient.....”

Pre-School Education

Due to a shortage or total absence of facilities, pre-school education has not been readily available to the children in our target population. Working in close liaison with the Supervisors from the Kindergarten Teachers Association the Public Health Field Nurses have managed to instigate some form of pre-school activity in most areas. The form this takes varies enormously, but all forms seem to be of value.

We are particularly grateful for the assistance and guidance that has been extended to us from members of the Kindergarten Teachers Association. It should not go unmentioned that they gave more than basic professional assistance and advice. It is a pleasure and encouraging to work with personnel who demonstrate such a keen awareness of the interdependence of health and education and who keep the well-being of the pre-school child foremost in their mind, and who consequently, cheerfully give advice and support to the Public Health Field Nurse when required. At no time have we been made to feel we were unwelcome or intruding on their territory. Instead, it has been a genuine team effort to give optimal benefits to the socially disadvantaged child by combining forces and using the most suitable facilities and personnel there were to hand.

Extract from Public Health Field Nurse Report

".....An impossibility I thought would never happen has occurred. The Kindergarten at the 3 mile Reserve has commenced, and is a startling success. Mrs. Jones, Director of W.A. Kindergarten Association came on a visit to Port Hedland. We met. To my relief she was thrilled and excited when she saw our little house on the Reserve and immediately we became an associate member of her organisation and a promise of \$200 worth of equipment. They also pay the salary for our regular teacher and an Aboriginal mother who is the teacher's aid. A committee has been formed, I am the Secretary. It's all systems go!....."

Family Planning

The nurses role in relation to this has remained one of educator, i.e. discussing the advantages of planning a family and pointing out that a visit to the doctor will be necessary. The nurses are expected to ensure that the man of the family is aware of what is happening and that his approval is necessary before any practical steps are taken. By giving support and information at the appropriate times the nurse can help to strengthen the family unit without infringing on the parents rights.

Although the nurse has remained an educator in relation to family planning, it is usually necessary for her to instigate the discussion rather than wait for the people to ask her advice. The casual discussion from time to time creates an opening for people to participate, to overcome their shyness and to improve their knowledge without having to admit to their ignorance.

In May, one of our Aboriginal Aides, Mrs. Norma Pidek attended a seminar on Aboriginal Health held at Monash University. One of the sessions she attended dealt with various aspects of family planning. Black Power representatives at the Seminar, who had boycotted the session subsequently accused her of genocide.

Care of the Pregnant Woman

The most common problem in relation to this target is persuading the mothers-to-be to tell the Nurse that they are pregnant. Even when it is obvious, they sometimes remain remarkably coy. Once this bridge is crossed the nurses are usually successful in encouraging attendance at antenatal clinics. In some areas post-natal visits do not seem to be as successful.

Sight, Hearing and Limb Conservation

A large part of this work ties in with the everyday tasks of the nurse. When necessary patients are referred for a medical opinion. Wherever possible and applicable, the Public Health Field Nurse teaches the mother how to carry out the recommended treatment. Purulent ears remain a major recurrent problem, although some encouraging results have been carried out, i.e. nutrition upgraded, hygiene improved, regular ear toilets carried out by mothers etc.

Eye troubles, although recurrent, are not on the whole as depressing because they usually respond much more quickly to treatment.

Sight and limb conservation is of special importance to nurses working with Hansen's Disease patients ; diabetics also come into this special bracket although they are more evenly distributed throughout the State.

Pensioners

Since the advent of drinking rights for Aborigines there has been a depressingly high incidence of younger and able bodied Aborigines "standing over" the Old Age Pensioners and demanding their pension money for grog. It is an everyday event. There are many depressing problems associated with this ignoble behaviour. To begin with Old Age Pensioners are frequently feeding numerous children and parents of the children as well, because the younger people have drunk or gambled their money.

When the meagre remnants of the pension are forcibly taken, there is no money for food. On top of this, there is the fact that having taken the money, the standover men go off and spend it on either wine or methylated spirits and so progress to an even less attractive state. The children become neglected. This situation with all its tragic complications breaks the hearts of the old people.

Trying to work in, let alone improve, this situation is no easy task for the nurse. It is not difficult to sit in an office, or in an institute of higher education and make a rational analysis as to why some of the young Aboriginal people might behave in this way. One sees it in a different light when one is picking a way among the broken bottles and bodies in and around the habitats of the people concerned. What should one say in reply to the following anguished statement made to me by a noble old Aboriginal man. "I have tried to teach my people right and good, but the bottle keeps calling them back".

Extract from Public Health Field Nurse Report

".....The granting of drinking rights has been felt seriously at intervals. The older people are very worried about the breakdown in their tribal customs of marriage, particularly the permissive sexual behaviour during drunken bouts. Their elders visit the prison and talk with the law breakers. It is hoped that their Council will be much more active soon".

I feel the standard of the old Reserve has deteriorated as the drinking increased. Fences have lost their wire, lawns have become rather wild and no-one attempts to grow vegetables. Official visitors usually come through about mid morning which is the peak tidy period. When the school children come home and visitors or card players congregate, the place seethes with people.

"A number of elderly people have died this year. Many had several visits to Hospital, or on to Wyndham, but seemed to decline rapidly as soon as they went home where they were eager to go anyway. One man, a leading elder, was killed in a fight (he had refused to pass over his money). The situation became further complicated by sorcery with all its attendant fears....."

School Medical Examinations

North of the 26th parallel the nurses assist the doctor with the school medical examinations. This practice has also begun in the Northwest since Dr. Williams joined the Service and it is expected to commence in the Pilbara when Dr. Quadros is able to take up his position. In these areas the nurse is responsible for undertaking certain follow-up treatment for various problems picked up, e.g. pediculosis, scabies, Hansen's Disease, Trachoma, Yaws, parasite infestations, anaemia, etc. She is also responsible for seeing that, with the parents support and approval, the child attends the dentist or visiting specialist when necessary.

It is Community Health Services aim that all school children north of 26th parallel have an annual medical examination. In the Kimberley, in addition to the annual medical examination, all school children should be checked each term for Hansen's Disease. The Public Health Field Nurses role in relation to school medical checks flows on smoothly from the sequential nature of the family care she normally conducts in the community.

I have already given some indication of the Nurses role in pre-school education and how adults and school children are encouraged and guided towards making intelligent observations and taking appropriate action in regard to their health. This groundwork usually means that the doctor, child, nurse, parent and teacher have already established a good working relationship. Professional personnel have acquired a comprehensive knowledge of what the child has to contend with outside school hours. All too often this comprehensive knowledge reveals that the child has gone to school without breakfast. He may or may not have money to buy lunch. After school he may find either one or both of his parents are away drinking or playing cards ; and there goes his evening meal, his homework, his home comfort, his security, his chances and his childhood. It is a great advantage to have background knowledge when working with such children.

We look forward to some very encouraging changes as an increasing number of children receive concentrated health care during their pre-school years, within the framework of their families. Parental involvement in pre-school activities, and the extension of facilities available for supervised homework for children who do not receive necessary support at home, bring accrued health benefits which are invaluable.

I would like to say while on the subject of school health that Public Health Field Nurses are indebted to a number of school teachers who have given their wholehearted support and worked along in a combined effort to promote a general well-being among the children in their care. This assistance has taken many forms—encouragement of teeth cleaning, support to school lunches projects, and numerous other extra curricular activities. Children are indeed fortunate to have teachers of this calibre.

Liaison with all Other Concerned Bodies

This is a most essential part of the Service because clients' health problems are inextricably interwoven with other problems. By establishing and maintaining effective communications with other organisations who come in contact with members of the multi-problem family it is possible to give maximum support with the minimum of overlap with other agencies, and minimal intrusion into family units.

Public Health Field Nurses are encouraged to arrange an opportunity for regular discussion between multidisciplinary groups composed of representatives such as Child Health Sisters, Health Surveyors, Homemakers, School teachers, Community Welfare District Officers, Women Police, Kindergarten teachers, Silver Chain Sisters and other personnel who are likely to be interested or involved.

A regular meeting of such personnel affords many benefits for the participants by forming a common base from which they can—

1. consolidate interdisciplinary working relationships.
2. assess, in concert, the health, welfare and educational situations and needs of the low socio-economic sections of the community.
3. study and evaluate the Services already available and whether or not they are being used, and if not, why not,
4. clarify the roles and discuss the goals of the various members of the group,
5. work out a realistic plan of action which aims to bridge the gap between the clients' knowledge and habits, and desirable targets.

Sometimes a theme is developed for these meetings and the ramifications of the theme are explored in the course of the discussion, e.g. in Derby the subject of school absenteeism was studied. Naturally this uncovered numerous other problems apart from the central theme, and the different disciplines could all contribute something towards the solution to the various facets of the problem.

Records

Records seem to be the bane of the Public Health Field Nurses' lives. There are numerous practical problems associated with them. There has been little, if any, improvement on the standardisation of the record system. Each nurse has compiled her records as she has gone along with the help of other Public Health Field Nurses and the Regional Medical Officers.

In the new areas the nurse has to obtain her own record cards ; then ascertain what records, if any, are already available to her ; what is necessary or unnecessary duplication ; who else needs access to her cards, e.g. Royal Flying Doctor Service, Out-Patients, etc. If the nurse does not have a filing cabinet or an office she has the additional problem and frustration of trying to store her records in a confidential place.

There seems to be little option but for the nurses to continue by trial and error until a final decision on the reporting and recording requirements of the Service has been reached.

Training

The system of encouraging responsible women to take on the work of Camp Nurse has continued to increase throughout the year and has continued to be successful.

Extract from Public Health Field Nurse Report

“.....Contact with School Project girls has been irregular this year. There was only a small group of 7-8 and they were kept occupied with running their morning tuck shop at the time available to come to Child Clinic. They helped gather bush fruit for the W.A. Institute of Technology research into food values. Lectures were given on hair care, nits, percussion of chests, gentle ear care, care of babies and the importance of early 'baby tucker'. They made food at their own cooking sessions and took it to ill-nourished children at the Reserve.....”

To date, training has been conducted on a small scale and in a variety of ways. More planning and behind the scenes work is entailed in such projects than meets the eye, and sometimes the necessary behind the scenes work daunts even the staunchest heart.

CONCLUSION

When planning to improve the health of a people, it is necessary to remember that the environment regulates the manner and extent to which their health standards can be raised. People born and raised in poverty lead a harsh, circumscribed life. They live on a day to day basis. They are not equipped to interact with the community as a whole ; and yet it is essential that they move towards this goal if they wish to improve their health. All too often they feel a sense of alienation from the remainder of the community. From the perspective of their poor environment they find it difficult, if not impossible to grasp the idea that poor health is not inevitable. They have little, if any, motivation towards non-crisis health care.

To achieve her aims the Public Health Field Nurse has to adapt to these realities and at the same time observe the principle that we work through the process of education and self help. Client decisions are to be fostered.

To consolidate a common starting point with the persons concerned, it is frequently necessary for the nurse to reach out and show that she has some understanding of the problems with which the people have to deal. Not only must the nurse show that she understands, but, where possible, she must demonstrate a practical approach to things the family already regards as problems.

Working through such problems together affords an opportunity to harmonise nurse-family relationships. It alleviates some of the pressure and stress enabling those involved to reflect on what has occurred and perhaps to learn in retrospect from the experience. When a more positive approach to the problem has been established the nurse should ease herself out of the situation and thereby promote self help within family units.

At the same time it is necessary for the nurse to ascertain and promote the general and specific capabilities of the persons in her care, raise their self esteem, and assist them in developing more positive attitudes.

It is essential for the benefit of her clientele, most of whom are members of multi-problem families, that where appropriate the Public Health Field Nurse supports and supplements other agencies.

Finally, and most importantly, the nurse must work in partnership with the client at the client's own pace.

She has to remember—

if she pushes, he will run,

if she pulls, he will lean,

if she orders, he will withdraw.

If she wishes to be effective she knows she must maintain a delicate link based on mutual trust and respect.

Appendix VII

Child Health Services

K. J. M. Carruthers, M.D., B.S.; M.R.C.S.; L.R.C.P.; D.P.H.;
F.A.C.M.A.; A.K.C. Director

In presenting this report, I must first pay tribute to my predecessor, Doctor A. R. Edmonds, who retired in November, 1972. Almost all the work to be described was carried out under his direction and many of the future developments envisaged will be the result of his planning.

STAFF

The situation in child health centres improved during the year although the chronic shortage of triple certificated sisters continued. Table 1 shows that there was a net gain of six sisters during 1972.

Table 1
Child Health Centre Staff (Includes Headquarters)

				Full Time	Part Time	Total
Separations	....	....	....	12	5	17
Additions	....	....	....	21	2	23
Net Gain (Loss)		....	....	9	(3)	6

There were five vacancies for child health sisters at the end of the year and also a number of impending retirements and eligibilities for long service leave.

The situation in the School Health section was more satisfactory, where the only difficulty was the obtaining of a medical officer to facilitate the creation of an additional school region (VIII). Two school medical officers left during the year and three were appointed. There was a full compliment of school nurses throughout the year.

VITAL STATISTICS

The appropriate data, presented in Table 2, shows that the birth rate for the year was 20·99 per 1,000, having been 23·57 in 1971. The total number of live births fell for the first time in seven years. There were 88 fewer ex-nuptial births than in 1971 but, in spite of this, the upward trend of these as a proportion of all live births continued. Ex-nuptial births accounted for 11·9 per cent of all live births in 1972 compared with 11·2 per cent in 1971, 10·8 per cent in 1968 and 5·1 per cent in 1958.

Table 2
Western Australian Statistics (1972)

	Perth Statis- tical Division	Rest of State	Whole State
Live births			
Number	14,400	7,777	22,177
Rate per 1,000 population	19·93	23·38	20·99
Ex-nuptial			
Number	1,424	1,208	2,632
percentage of live births	9·9	15·5	11·9
Stillbirths (born after 20 weeks gestation)			
Number	173	85	258
Rate per 1,000 total births	11·9	10·8	11·5
Infant deaths (aged under 1 year)			
Number	188	160	348
Rate per 1,000 live births	13·1	20·6	15·7
Neo-natal deaths (aged under 28 days)			
Number	136	95	231
Rate per 1,000 live births	9·4	12·2	10·4
Perinatal deaths (stillbirths and neo-natal deaths)			
Number	309	180	489
Rate per 1,000 total births	21·2	22·9	21·8

The infant mortality rates for the past five years (Table 3) show a further and much greater improvement in 1972, the rate for the whole State having fallen to 15·7. The previous lowest rate was 17·4 in 1967. Although the rate was much lower in the Perth statistical division, the improvement applied equally to the rest of the State.

Table 3
Infant Mortality in Western Australia—1968–1972

Year			Perth			Rest of State			Whole State		
			Live Births	Inf. Deaths	I.M. Rate	Live Births	Inf. Deaths	I.M. Rate	Live Births	Inf. Deaths	I.M. Rate
1968	....	....	12,018	205	17·1	7,523	192	25·6	19,541	397	20·3
1969	....	....	13,094	240	18·3	7,600	213	27·8	20,754	453	21·8
1970	....	....	13,908	251	18·0	7,710	208	27·0	21,618	459	21·2
1971	....	....	15,843	269	17·0	8,396	195	23·2	24,239	464	19·1
1972	....	....	14,400	188	13·1	7,777	160	20·6	22,177	348	15·7

Table 4 shows that more than 25 per cent of all infant deaths are still occurring after 28 days, an unsatisfactory situation that appears to be continuing.

Table 4
Neo-natal Deaths as a Percentage of Total Infant Deaths 1968–1972

Year					Perth Statis- tical Division	Rest of State	Whole State
1968	....	....	....	....	80·5	65	73
1969	....	....	....	....	81·5	60	71
1970	....	....	....	....	74·9	61	63·5
1971	....	....	....	....	69	61·5	65·6
1972	....	....	....	....	72·3	59·4	66·4

CHILD HEALTH CLINICS

A new clinic was built at Karratha and opened in May. A child health service began operation at Tom Price during the year although the proposed new clinic premises have not yet been completed. New clinic buildings were also erected by the local authorities concerned at Duncraig, East Hamersley, Eden Hill, Greenwood, Hollywood, Lockridge, Middle Swan and Sorrento in the metropolitan area and at Capel, Donnybrook and Moora. Unfortunately, the staff situation lead to our inability to continue to operate the Wyndham and Kununurra Clinics and caused temporary closures of the centres at Beverley, Collie, Moora and Three Springs.

Table 5 is a summary of the work done in Clinics during the past three years.

Table 5
Work in Child Health Clinics 1970-1972

	1970	1971	1972
Birth Notifications Received	19,897	22,227	19,184
Births Registered	21,618	24,239	22,177
Gross Attendances	273,368	276,056	273,226
Individuals Attending			
Under 1 year	24,834	26,406	24,785
1 to 2 years	6,195	9,651	11,088
Over 2 years	8,991	5,870	7,293
Total	40,020	41,927	43,166
Home Visits	31,375	31,697	33,343
Telephone Consultations	27,063	26,957	28,984
Hospital Visits	19,919	17,569	18,909
Hearing Tests	9,049	10,895	12,154
Failed to pass	58	76	109
Vision Tests	1,408	1,015	1,621
Failed to pass	61	35	57
Urine Tests	20,383	22,471	17,919
Number of Expectant Parent Classes	576	442	533

The reduction in the number of births had little effect on the work load and it is gratifying to note some increase in the attendance of mothers with children over the age of one year. Greater emphasis is being placed on developmental screening and consideration of child rearing throughout pre-school life, and it is hoped that parents will make increasing use of the Child Health Service throughout their children's pre-school and also school lives.

CORRESPONDENCE SECTION

This section, staffed by Child Health Sisters at the Rheola Street headquarters, continues to maintain a correspondence service for mothers in those parts of the State not otherwise covered and for some Western Australian families at present living overseas. With the commencement of new clinic services at Karratha and Tom Price these areas were handed over to the new child health sisters.

Table 6 shows a fall in the work load in respect of younger children compared with the previous year. This is compatible with the fall in the total number of births.

Table 6
Work Load re Children Aged Up to 2 Years, 1970-1972

	1970	1971	1972
Birth Notifications Received....	1,229	2,172	1,606
“ New ” Babies registered with Child Health Services	1,129	1,603	1,331
Requests for advice received (re children up to 2 years)	13,557	19,550	15,732

In addition, 1,706 requests for advice were handled in respect of children aged 3 to 5 years and 405 from expectant mothers.

Correspondence section sisters staff the West Perth Clinic which includes a monthly evening session held at the same time as the Epidemiology Department's evening immunisation clinic. Country mothers often take the opportunity of bringing their children to the West Perth centre while on a visit to the city and the figures for these attendances in 1972 were :—

Babies	....	....	....	....	....	....	380
Children aged 1–2 years				....	....	....	114
Children aged 3–5 years				....	....	....	111
School children	....	....	....	....	....	....	22
Total	....	....	....	....	....	....	627

Regular trips on the Trans Australian Railway “Tea and Sugar” train in co-operation with the South Australian Health Service were resumed in July, thereby renewing a health service for those families living in small isolated communities along the line. Visits were also paid to the following areas :—

Cue	Marble Bar	Nullagine	Roy Hill
Ethel Creek	Meekatharra	Paraburdoo	Tom Price
Exmouth	Mount Goldsworthy	Paynes Find	Warburton Mission
Jigalong	Mount Magnet	Port Hedland	Wittenoom
	Mount Newman	Rottnest Island	Yalgoo

EDUCATION—PREPARATION FOR PARENTHOOD

Correspondence courses in mothercraft and fathercraft for primary school children in areas with a predominance of aboriginal children were continued. This was done with the much appreciated co-operation of teachers and a number of these have indicated that they consider this exercise to be of considerable value. A number of aboriginal adults received specially designed lessons. Table 7 shows the utilization of this service for 1971 and 1972.

Table 7

Mothercraft and Fathercraft Correspondence Lessons 1971–1972

Number of students	1971	1972
Mothercraft	777	821
Fathercraft	328	411
Adults	40	49
Number of lessons (Total)	19,058	20,696

The parenthood course for High School students, commenced in 1970, was continued in 1972. A total of 2,203 students (1,624 girls and 579 boys) took the course during the year, more than four times the number for 1971. Once more the helpful co-operation of the Education Department and of individual teachers is acknowledged.

These two ventures, carried out jointly with the Education Department, aim to help prepare young people for the responsibilities of family life and are an example of the value of co-operation between the two departments involved.

The final link in the chain of preparation for parenthood is the holding of special classes for expectant parents, including “expectant” fathers. There were 4,827 attendances at 533 classes held during the year, and it is hoped that these numbers will increase in the future as more classes are arranged.

SCHOOL HEALTH SERVICE

Doctor Thomas, the senior schools medical officer, reports :—

“ In view of the increase in the school population and the number of schools, and some widening of the scope and increased sophistication of the service, it was again found necessary this year to create another school region (Region VIII).

Despite a lot of effort, liaison and rapport with teachers makes very slow progress. Even senior headmasters, whose schools have been visited by the School Health Service for many years, still appear to be unaware of the workings of our Service and what constitutes our prime function. One feels that the wealth of information on school children accumulated by teachers, which could be invaluable to school doctors in particular cases, is at the moment, to a large extent, not being made available because of apparent reluctance on the part of some teachers to initiate discussion with doctors concerning problem children.

During the year a Sister was placed full time in a senior high school as a pilot scheme. Her role is seen as being to give first aid in the first instance but with the major objective of being in the school situation to give personal counselling to students in health education as well as conducting much of the routine health screening. Reactions so far to this arrangement have been very favourable but review and final assessment await further trial.

Some extension of the School Health Service into a trainee teachers' college was also commenced at the beginning of the third term. It was planned that a doctor should visit this college on one day a week and act in the role of health counsellor to students with health problems, particularly problems prejudicing their academic progress. In addition it was agreed that he would also be available in a consultative role in connection with the development of courses in health and physical education, and to be prepared to participate in discussions and tutorials and/or deliver lectures in this context.”

Table 8 shows the number of schools visited in 1972.

Table 8
“Schools” etc., Visited by School Health Teams in 1972.

Kindergartens	Child Care Centres	Primary Schools	Secondary (including Junior High) Schools
181	43	503	88

This represents an increase of 146 in the number of Kindergartens visited, 41 more Child Care Centres and 72 more Primary Schools than in 1971. Table 9 indicates the total number of children referred for further attention and Table 10 gives a breakdown of those referred to local general practitioners for medical attention. 25 per cent. of students examined were referred for further attention, 14 per cent being for medical attention. Visual defects continue to be a major reason for referral for medical attention.

Table 9
Examinations by School Medical Officers 1972

	Metropolitan			Country			Total Examined		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Examined	13,936	12,073	26,009	5,435	5,029	10,464	19,371	17,102	36,473
Referred for Medical Attention	1,983	1,674	3,657	794	759	1,553	2,777	2,433	5,210
Referred for Home Attention	888	420	1,308	322	223	545	1,210	643	1,853
Referred for Dental Attention	790	594	1,384	369	360	729	1,159	954	2,113
Total Referrals	3,661	2,688	6,349	1,485	1,342	2,827	5,146	4,030	9,176

Table 10

Reasons for Referrals for Medical Attention 1972

Type of Medical Attention					Metropolitan			Country			Total Referrals		
					Male	Female	Total	Male	Female	Total	Male	Female	Total
Vision	....	....	....	....	903	912	1,815	324	393	717	1,227	1,305	2,532
Hearing	....	....	....	....	294	216	510	141	116	257	435	332	767
Other	....	....	....	....	786	546	1,332	329	250	579	1,115	796	1,911
Total	....	....	....	....	1,983	1,674	3,657	794	759	1,553	2,777	2,433	5,210

8,360 pre school children were examined (6,867 in 1971) and of these 1,205 (14 per cent.) were referred for further attention as shown in table 11.

Table 11

Examinations by School Medical Officers (Pre-school) 1972

					Male	Female	Total
Examined	....	....	....	....	4,351	4,009	8,360
Referred for Medical Attention	....	....	....	....	373	314	687
Referred for Home Attention	....	....	....	....	120	107	227
Referred for Dental Attention	....	....	....	....	155	136	291
Total Referrals	....	....	....	....	648	557	1,205

Table 12 gives more detailed information concerning the defects observed in examinations carried out by one school region (III).

Table 12

Defects Referred to General Practitioners by Region III

					Metro-politan	Country	Whole Region
Total number examined	....	....	....	....	18,505	4,486	22,991
Vision	....	....	....	....	255	77	332
Other eye disorders	....	....	....	....	11	7	18
Hearing	....	....	....	....	91	40	131
Other ear disorders	....	....	....	....	33	10	43
Speech	....	....	....	....	34	9	43
Emotional and learning problems	....	....	....	....	25	4	29
Cardio-vascular	....	....	....	....	6	2	8
Respiratory	....	....	....	....	55	16	71
Endocrine	....	....	....	....	3	0	3
Skin	....	....	....	....	48	5	53
Hernias	....	....	....	....	14	4	18
Musculoskeletal	....	....	....	....	10	7	17
Genetic-urinary	....	....	....	....	19	6	25
CNS	....	....	....	....	10	0	10
Obesity	....	....	....	....	48	22	70
General Condition (physical)	....	....	....	....	25	2	27
Unspecified	....	....	....	....	8	0	8
Total	....	....	....	....	695	211	906

In this region 6 per cent. of those examined were referred for further medical attention and of these over half were for defects of vision and hearing.

IN SERVICE TRAINING

Considerable emphasis is placed on the provision of in-service training aimed at maintaining a high level of expertise and the acquiring of new skills. Monthly lectures were again arranged throughout the year for the child health sisters and for the school health staff. The former series were recorded on tape for the use of country Child Health sisters unable to attend the lectures. Annual refresher courses of a week's duration were held for both sections in August. For the third year in succession selected child health sisters attended a ten week course on "the pre-school child", and a short three day course was held at Rheola Street on "child health sisters in the kindergarten". A mature age course was also arranged as a re-orientation programme for sisters joining the service after several years of absence from child health centre work.

REMARKS

In the early years of the child health service attention was of necessity focused on the problems of nutrition, infection and hygiene. These matters are fundamental and must in no way be neglected as the emphasis shifts to other aspects of child care. The principal aim of the service is to help every child and every family to achieve maximum fulfilment in life by the best use of the potential with which they are endowed, and this includes obtaining the most out of education. Developmental and health screening play a vital role if defects are to be detected at an early stage and the appropriate remedial measures taken in time. Child health clinics are well patronised by mothers while their children are in infancy but too few avail themselves of the opportunity for regular screening throughout the pre-school years.

As already noted the staff situation has led to the closure of some child health centres but there is reasonable hope that it will be possible to improve the service in the north during 1973. It will also be necessary to examine closely the work load of country centres ; many of which are now less busy with the shift of the rural population to the city. Large new suburbs accommodating mainly young married couples are being developed in the outer metropolitan areas and this will create a need for new centres and more staff.

Greater emphasis is now being placed on the integration of the two sections of this service—the child health clinics (and correspondence section) and the school health service. The school health Service, by being responsible for routine examinations in kindergartens and child care centres, is becoming increasingly involved with pre-school children. The annual pre-school course for child health clinic sisters with the abandoning of the title "Infant Health Sister" facilitates greater effort among children in this age group. Total operational integration is not possible for purely functional and administrative reasons but recognition of the essential unity of the service and an increasing degree of co-operation are. The recent revision of the syllabus for the Child Health Certificate course has incorporated a substantial pre-school, school and adolescent content. It is to be hoped that this course will develop further to become a complete child health course.

Co-operation is essential not only between the two arms of this service but also between this service and a number of others concerned with the welfare of children. This needs to take place at both headquarters and field levels. Close liaison is maintained with such organisations as the Department of Education, Mental Health Services, Community Health Services, Community Welfare Department and the Princess Margaret Hospital. Special mention must be made of the local general practitioners to whom all cases are referred if further medical attention is indicated. The role of this service is to advise, to carry out health screening and to educate, but not to treat.

In his report on the School Health Service, Doctor Thomas mentioned two new developments. The first of these was the setting up of a medical centre at a Metropolitan State High School staffed full time by a school health sister. This has proved to be a great success and plans are being made to develop a similar service in a number of other high schools. In addition to carrying out first aid measures, sister is able to co-operate with local general practitioners in supervising and maintaining some forms of treatment. She is available in the school situation as a health resource person and a friend to whom students can come for advice and counselling. She carries out the usual routine health screening in the school backed up by one of the school medical officers. She is able to keep in touch with parents when necessary and has the opportunity of discussing specific health problems with the teaching staff. She is also able to take the opportunity to give personal health education as she handles individual students.

A further development of the school health service, referred to by Doctor Thomas, is the regular weekly visit of a senior doctor to one of the teachers' training colleges. As yet this is still in the experimental stage but appears to have considerable potential. It is hoped that this particular facility will provide opportunities for the counselling of trainee teachers and also help to prepare them to deal with matters related to health education, modern social issues and personal relationships, matters that are not always easy to handle in the school situation.

The figures quoted in this report indicate the quantity of work carried out during the year but reveal little if anything of its quality. It is with quality very much in mind that considerable emphasis must continue to be placed on in-service training. Developmental screening leading to early detection of defects, especially those which may cause learning difficulties, is becoming increasingly important. It was with this in mind that Doctor Edmonds began to plan for the appointment of a specialist in developmental paediatrics to this service, an event which was anticipated early in 1973. This would facilitate training in depth of doctors and sisters in the skills of developmental screening, and also provide for the preliminary assessment of children suspected of having such defects.

As the new Federal Government gets further into its stride it would appear that there will be a considerable increase in facilities for pre-school education and the provision of many more day care centres. This will result in many more children being available for developmental and general health screening, a challenge which this service will accept in the hope that significant defects will be detected at a stage to enable remedial action to be taken before formal education begins.

Appendix VIII

Pharmaceutical Services Branch

W. M. Griffiths, B. Pharm., F.P.S. (G.B.), M.P.S.

Chief Pharmacist

Poisons Act and Regulations

On the advice of the Poisons Advisory Committee, taking cognizance of recommendations of the National Health and Medical Research Council, new controls were implemented over certain drugs. Clomiphene and other preparations specifically prepared to stimulate ovulation are restricted to supply by or on the prescription of Fellows and Members of the Royal College of Obstetricians and Gynaecologists who are practising gynaecologists, or for the purpose of conducting Medical and Scientific Research including Veterinary Trials under the direction of Veterinary Surgeons. L-Dopa may only be used on the recommendation of a consultant General Physician or Neurologist for patients who have been assessed for response to and tolerance of treatment with it.

The original Poisons Act Regulations were consolidated with their subsequent amendments and issued as a single incorporated edition during the year.

Pesticides

A consolidated issue of the Pesticides Regulations was printed during the year. The Registration Fee for a new pesticide was fixed at \$5.00 with an annual renewal fee of \$2.00. The requirements for containers of pesticides were strengthened.

Sixty nine (69) submissions were reviewed under the National Clearance Scheme operated in conjunction with the Technical Committee on Agricultural Chemicals, twenty five (25) of which were new chemicals or new uses for cleared chemicals.

One hundred and sixty six (166) applications were examined for registration of formulated products in the List of Registered Pesticides. One hundred and forty five (145) were approved, twenty one (21) are still subject to consideration.

One hundred and forty seven (147) previous recommendations were cancelled or withdrawn.

One thousand three hundred and four (1,304) formulations were registered as at 31st December, 1972.

Appendix IX

Dental Health Service

J. L. Prichard, Dip.D.S., B.D.Sc., F.I.C.D. – Principal Dental Officer

Given hereunder are details of the activities of the Dental Health Service during the year ending 31st December, 1972.

1. Clinic Services

The Service continued to operate dental clinics at Wyndham, Derby, Broome, Port Hedland, Tom Price, Dampier, Newman, Exmouth, Kojonup, Beverley and Margaret River.

During the year new clinics were opened at Wickham, Ongerup and Three Springs, and regular visiting services were provided at Kununurra, Balgo Hills, Halls Creek, Kalumburu, Derby Leprosarium, Lombadina, Beagle Bay and La Grange Missions, Fitzroy Crossing, Cockatoo and Koolan Islands, Goldsworthy, Wittenoom, Norseman, Paraburdoo, Roebourne, Onslow, Brookton, Morawa, Jerramungup and Gnowangerup.

An itinerant service visited outposts on the Trans Australian Railway.

At 31st December, 1972 the Service employed 21 dentists, 7 nurses and 16 dental clinic assistants.

Table I shows the volume and variety of treatments administered during the year.

2. Subsidised Dental Care

During 1972 there was a considerable increase in the number of patients applying for dental care subsidies. A total of \$117,096 was paid out in claims over the twelve month period.

Details of costs and the number of patients treated are given in Table II.

3. Dental Therapy Scheme

Late in the year legislation was introduced to amend the Dental Act, making it possible for the Dental Health Service to engage dental therapists and hence provide a dental care service to children at selected schools in Western Australia.

With close co-operation from the Education Department clinics were prepared at Balga, Kewdale and Palmyra primary schools. These sites were chosen on the bases of student population density, proven treatment needs and geographical location. Plans to engage the services of 9 dental therapists had been made by December 31, 1972.

The policy of the Dental Health Service is to provide a comprehensive dental care service for all school children in the State and it is expected that the Commonwealth Government will co-operate with the State in providing this desirable service.

4. Fluoridation

A survey of metropolitan school children showed a reduction of 27 per cent. in caries of permanent teeth of 6 year old children since fluoridation began.

5. Dental Charges Committee

Another amendment to the Dental Act provides for the establishment of a Dental Charges Committee.

This committee will be empowered to investigate irregularities in fees charged by private dentists and will also protect the profession by recommending the recovery of fees considered reasonable by the committee.

6. School Children's Dental Examination Scheme

During March and April 1972 the Service's Dental Health Education Officer travelled to New Zealand on a N.H. & M.R.C. Fellowship. A report on his findings has been published elsewhere.

7. Administration

At December 1972 there were 57 persons on the staff of the Dental Health Service, comprising 21 Dental Officers, 7 Nurses, 16 Dental Clinic Assistants, 4 Clerical and General Officers and 6 casual employees.

Table I
Yearly Summary of Treatment in Departmental Clinics

	Teeth Extracted	NUMBER OF TEETH RESTORED							Dressing	X-ray	Prophylaxis	Preventive Treatments	Minor Surgery	Missed Appointments	COMPLETED DENTURES							Patient Treatment Completed
		Synthetic	Amalgam		Inlay	Crown Bridge	Completed R.C.T.	Completed R.C.T.														
			Single Surface	Compound																		
Children	3,135	1,230	5,155	3,439	29	28	30	966	1,057	704	880	193	905	4	....	6	1	30	1	9	4,496
Adults	6,251	4,362	4,426	5,793	129	102	165	1,630	2,145	1,269	85	393	1,622	320	201	265	118	22	61	456	5,301	
Total	9,386	5,592	9,581	9,232	158	130	195	2,596	3,202	1,973	965	586	2,527	324	201	271	119	52	62	465	9,797	

Table II
SUMMARY OF APPLICATIONS RECEIVED AND CLAIMS PAID—JANUARY–DECEMBER 1972

Total Number of Applications Received : 2,655			
Applications Received on Behalf of :			
	Number eligible	Number not eligible	
Children	2,018	249	
Pensioners	1,247	42	
Others	41	71	
Total	3,306	362	Total Number of Requests : (1 + 2) = 3,668

SUMMARY OF CLAIMS PAID:

	Number	Total	Subsidy	No. of Visits	No. of Fillings	No. of Extr.	New Pros.	Other Pros.	No. SnF2	Other Treatments
Children	2,018	\$ 44,137.02	\$ 30,792.40	5,234	5,207	1,687	24	2	290	1,615
Pensioners	1,247	72,117.10	62,345.73	3,845	632	1,415	932	251	85	582
Others	41	841.85	714.87	53	54	11	4	4	4	14
Total	3,306	117,095.97	93,853.00	9,185	5,893	3,113	960	257	379	2,211

Appendix X

Nursing Administration Section

Miss M. E. Beard, D.N.A., F.C.N.A. — Principal Matron

1. NURSING SERVICE

The employment of married nursing staff (many of them part-time) and the Emergency Nursing Service, have combined to maintain a stable staff situation generally in most hospitals throughout the State.

Unfortunately some hospitals fail to attract any staff, e.g. Southern Cross has been without a permanent Matron and D.C. Sisters since the 30th June, 1971, necessitating constant Emergency Nursing Service support. Meekatharra, Leonora, and Laverton always require at least one Emergency Nursing Service Sister.

1.1 Emergency Nursing Service

The demand for Emergency Nursing Service Sisters reaches a peak during the summer months and particularly during December and January when so many regular staff take annual leave.

Summary 1/1/72—31/12/72

(i) appointments :	6 months contract	14
	12 months contract	24
		—
	Total :	38
		—

(ii) Did not complete contract : 2 (resignations) 1 (deceased M.V.A.)

(iii) Contracts completed : 44

(iv) Number employed at 31/12/72 : 35

1.2 Public Health Field Nurses and Assistants

Expansion of this service has continued and now includes the following areas :

Balga, Balgo Hills, Broome, Carnarvon, Collie, Derby, Fitzroy Crossing, Geraldton, Gnowangerup, Halls Creek, Kalgoorlie, Kununurra, Leonora, Midland, Newman, Moora, Narrogin, Pingelly, Port Hedland, Roebourne, Wyndham, South of the River.

Staff at 31/12/72 : 27 Sisters plus assistants

4 S.C. Sisters

2 Nursing Aides

1 Nursing Assistant.

Public Health Diploma Course

This Course especially designed for conditions in Western Australia will be inaugurated at the Western Australian Branch, College of Nursing, Australia, in 1973.

2. NURSE EDUCATION :

2.1 Post Graduate studies—Scholarships

(a) *College of Nursing (Australia), Melbourne*

Miss D. M. Peacock	}	Nursing Administration Diploma Course
Miss Y. Cranwell		
Miss M. Hutton		Intensive Care and Ward Management Course.
Miss M. Vidovich		

(b) *College of Nursing (Australia), Western Australian Branch*

Miss P. I. Brown	}	Nurse Education Diploma Course
Miss M. Baird		
Mrs. P. A. Cole		
Mrs. J. Winston		
Mrs. H. Lewis		
Mr. A. Diletti		

(c) *Helen Bailey Scholarship*

Not awarded this year.

2.2 Post-basic Advanced Course in Coronary Care

In collaboration with the Government School of Nursing the National Heart Foundation of Australia (W.A. Division) conducted a Post-basic Advanced Course in Coronary Care at the School from 28/2/72 to 24/3/72. Sixteen Sisters attended from country and Metropolitan Hospitals.

3. GOVERNMENT SCHOOL OF NURSING :

General Training

In January 1972, the new Hospital Based Diploma Course was introduced to incorporate the Regional Country Hospitals, peripheral hospitals, Royal Perth Hospital, Repatriation General Hospital and Swanbourne Hospital.

With the introduction of this new programme, plus the advertisements, there was a marked increase to recruitment. Three schools per annum were introduced, commencing 24th January, 29th May, and 2nd October, 1972.

Herewith is a plan for this programme :

Associated Hospitals

Country (Regional)—	Kalgoorlie Geraldton Bunbury Northam
Peripheral Metropolitan—	Osborne Park Bentley Swan Districts
City Hospitals—	Royal Perth Hospital Repatriation General Hospital Swanbourne Hospital

Precis of Programme of Education

Period *Place*

First Year

Pre-Clinical	Government School of Nursing, 18 Colin Street, West Perth and
26 weeks	Peripheral Metropolitan Hospital.
20 weeks	Regional parent hospital (To include children and maternity nursing and/or other speciality.)
6 weeks	Annual Recreational Leave.

Second Year

21 weeks	Regional parent hospital
4 weeks	Study block at Government School of Nursing.
21 weeks	Royal Perth Hospital (including 5 study days)
6 weeks	Annual Recreational Leave

Third Year

4 weeks	Study Block at Government School of Nursing.
36 weeks	Regional Parent hospital.
2 weeks	Repatriation General Hospital.
4 weeks	Mental Health.
6 weeks	Annual Recreational Leave.

Course Outline :

1. Human Growth and Development	....	....	....	....	105 hours
2. Community Organization	....	....	....	....	80 hours
3. Institutional Organization	....	....	....	....	100 hours
4. Disease and Disease Processes	....	....	....	....	210 hours
5. Nursing Skills	....	....	....	....	240 hours
6. Clinical Practise—Supervised Practise	....	....	....	....	480 hours
	Royal Perth Hospital	....	....	....	800 hours
	Swanbourne Graylands Hospital	....	....	....	160 hours
	Repatriation General Hospital	....	....	....	80 hours
7. Other Activities	....	....	....	....	135 hours
8. Visits	....	....	....	....	48 hours

The five broad areas are continued over the three years for the basic nursing education programme, correlating theory and practice.

TOTAL : 1,158 hours plus 324 study hours which they spend in their parent hospital.

In 1972, sixty-two (62) students were recruited into General Nursing Training.

The distributions were as follows :

Kalgoorlie Regional Hospital	....	....	....	....	....	11
Geraldton Regional Hospital....	....	....	....	....	....	15
Northam Regional Hospital ....	....	....	....	....	....	13
Bunbury Regional Hospital	....	....	....	....	....	14
Plus transfers from other Training Schools	....	....	....	....	....	3
Transfers from Pre-clinical Course to Nursing Aide Course	....	....	....	....	....	3
Resignations from Pre-clinical Course	....	....	....	....	....	2
Terminations from Pre-clinical Course	....	....	....	....	....	4
Terminations from General Training	....	....	....	....	....	7
Resignations from General Training :—						
Kalgoorlie Regional Hospital	....	....	....	....	....	1
Geraldton Regional Hospital	....	....	....	....	....	2
Northam Regional Hospital	....	....	....	....	....	1
Bunbury Regional Hospital	....	....	....	....	....	1
TOTAL Terminations, Transfers and Resignations	....	....	....	....	....	21

Staff

Government School of Nursing

Miss E. E. Harler, A.R.R.C., E.D., F.C.N.A., Organiser of Nurse Training.

Miss A. C. Mann, A/Organiser of Nurse Training

Miss E. E. Harler was granted Long Service Leave from the 25th February until the 4th July 1972. During her absence she was relieved by Miss A. C. Mann, F.C.N.A., Matron of Bentley Hospital.

Miss M. P. Underwood, F.C.N.A. Nursing Education Diploma	Principal Nurse Educator
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Miss W. Gardiner Nursing Education Diploma	Senior Nurse Educator
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Miss P. Smart	Nurse Educator
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Mrs. M. Owen Nursing Education Diploma (1972)	Nurse Educator Appointed 21st April, 1972
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Miss M. R. Baird Nursing Education Diploma	Nurse Educator
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Miss Baird was granted Leave of Absence on the 29th February, 1972, to undertake the Nursing Education Diploma Course at the College of Nursing (Australia).

Visits

Government School of Nursing Staff vistied Regional and Metropolitan Hospitals during 1972 on twenty occasions.

Miss Underwood was seconded to Royal Perth Hospital on the 23rd October to 17th November, 1972, as a working observer in the Intensive Care Unit.

Miss Baird was relieving Nurse Educator at Bunbury Regional Hospital from the 28th December, 1971 to the 15th January, 1972.

Matrons of all General Training and Nursing Aide Training Schools attended a meeting held at the Government School of Nursing on the 10th August, 1972.

National Royal Australian Nursing Federation Workshop

Miss W. Gardiner, Senior Nurse Educator, attended the National Royal Australian Nursing Federation Residential Workshop held in Canberra from the 10th to the 12th August, 1972, inclusive. A report on the workshop was submitted.

Nursing Aide Training

On the 4th January, 1972, nine (9) Aboriginal girls commenced the Nursing Aide Course at Derby District Hospital. Seven girls completed the Course. Six Nursing Aides were successful in passing the Nurses' Board Final Examinations. One attempted the examination but failed.

The success of this group of Nursing Aides was largely due to Miss J. Brann, Nurse Educator, who willingly gave of her time, interest and every encouragement to the girls both in their work and social activities.

Number of Nursing Aides commenced training during the year :							237
Number passed Nurses' Board Examinations							136
Terminations 20	}	....	....	....	....	....	53
Resignations 33							
Transfers to General Training							2

Interviews

During the period 1st January, 1972 to 31st December, 1972, 694 persons were interviewed by appointment. This number does not include the Nursing Bursars leaving school, nor applicants for the Nursing Bursary.

There were also a number of casual interviews of school girls and parents who called at the Government School of Nursing for information.

In addition, 323 applicants for the Nursing Bursary were interviewed in 1972.

4. INDEPENDENT SCHOOL OF NURSING

During the year discussions involving the Medical Department, the Government School of Nursing, and Royal Perth Hospital, have established the feasibility of an amalgamation, of the General Nurse Training programme within an Independent School of Nursing, to serve the needs of both Royal Perth Hospital and Departmental training hospitals.

Subsequently—

- (a) The Honourable Minister for Health has approved of planning for a building on the corner of Hill and Wellington Streets, Perth.
- (b) An interim management committee has been formed to work towards the amalgamation.

It is hoped that the School currently named the “ Western Australian School of Nursing ”, will be completed by 1974.

5. RECRUITMENT

5.1 Nursing Bursaries to continue secondary education beyond third year level :

1 year (1972)—19

2 years (1972–1973)—110

Pre-Nursing Bursaries

Mt. Lawley Technical College—24

Nursing Cadets

One (appointed Northam, and subsequently commenced training in September 1972)

At 31/12/72, there were no Cadets employed.

5.2 Nursing Employment Section

Numerous enquiries (personal as well as by letter and telephone) for employment have been processed, and appointments made to hospitals all over the State.

5.3 The Nursing Publicity and Recruitment Officer

Following the resignation of Mrs. H. Lewis at the end of December 1971, Mrs. B. Miller was appointed and commenced on 21st February, 1972.

Nurse Recruitment continues. Contacts with students, teachers, parents and the General Public have been established through Schools and Career Nights, Parents and Citizens Associations, Counselling, advertising, Brochure Distributions, visits to Aboriginal Hostels, Correspondence and the Department of Immigration. Schools have been visited in both the city and country areas. To date contact has been made with 5,236 females and 153 males. Office visits for counselling number 190 (males and females)

A Volkswagon Recruitment Van has been purchased and will be used in both country and city school visits. A small exhibition can be set up in the Van and advice on Nursing Recruitment given to students.

I am pleased to advise that most training schools advised that they have a full intake of students for 1973, and some hospitals have Schools booked into 1974.

6. STANDARD REFERENCES FOR NURSING PROCEDURE AND NURSING ADMINISTRATION

During 1972 the two manuals listed were revised, reprinted and distributed to Hospitals.

Nursing Administration Manual ;
Manual of Nursing Procedures.

7. INSPECTIONS

7.1	Departmental Hospitals	....	....	....	....	....	....	46
	Board Hospitals	....	....	....	....	....	....	34
7.2	Home Confinements	....	....	....	....	....	....	1
7.3	Private Hospitals :							
	Nursing Homes	....	....	....	....	....	....	297
	General and Maternity	....	....	....	....	....	....	7
	General	....	....	....	....	....	....	19
	Maternity	....	....	....	....	....	....	3

								TOTAL : 407

8. NEW PRIVATE HOSPITALS LICENSED

8.1 General Hospitals

Bicton Medicentre, Bicton	....	....	....	....	....	75 beds
Stirling Hospital, Mt. Yokine (extension of license)	....					78 beds and 2 cots

8.2 General and Midwifery Hospitals

St. John of God Hospital, Bunbury	110 beds
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TOTAL : 263 beds

8.3 Nursing Homes

Adelphi Nursing Home, Bayswater	37 beds
Bassendean Nursing Home, Bassendean		39 beds
Craigmont Convalescent Hospital, Maylands	....	....		102 beds
Craigwood Convalescent Hospital, South Perth	....			104 beds
Craigville Convalescent Hospital, Melville	....	....		103 beds
Como House Nursing Home, Como	....	....	....	39 beds
Fremantle Nursing Home, East Fremantle	....	....		45 beds
Hamilton Hill Nursing Home, Hamilton Hill	....	....		40 beds
Koh-i-Noor Nursing Home, Wembley	....	....	....	24 beds
Lathlain Nursing Home, Lathlain	....	....	....	50 beds
Midland Convalescent Home, Midland	....	....	....	55 beds
Mt. St. Camillus Nursing Home, Forrestfield	....	....		36 beds
Shoalwater Nursing Home, Shoalwater Bay	....	....		32 beds
Valencia Nursing Home, Carmel	....	....	....	40 beds

TOTAL : 746 beds

8.4 Extensions of License in existing approved Nursing Homes

Brentwood Nursing Home, North Perth (31 to 33 beds)	2
Carinya Nursing Home, Bicton (40 to 63 beds)	.... 23
Embleton Nursing Home, Morley (32 to 48 beds)	.... 16
Hillview Nursing Home, Armadale (35 to 49 beds)	.... 14
James Brown House, Osborne Park (32 to 55 beds)	.... 23
Maurice Zeffert Home, Mt. Yokine (16 to 23 beds)	.... 7

85

TOTAL : 1,064

9. NURSING HOMES CLOSED

S. A. Eventide Home, Fremantle.

I wish to express my appreciation to the staff of the Nursing Administration section for their valuable assistance during 1972.

Appendix XI

Division of Occupational Health

J. C. McNulty, M.B., B.Ch. B.A.O. (Belfast), D.I.H.R.C.S. & P.
(England), D.I.H.S.A. (London), D.P.H., (Sydney), F.A.C.M.A.
Acting Physician in Charge.

PNEUMOCONIOSIS AND MINING INDUSTRY

Mining Examinations

3,914 men who entered the mining industry during 1972 were examined under the Mines Regulation Act and 4,982 miners under the Mine Workers' Relief Act. There were 309 miners suffering from pneumoconiosis and of these, 19 were new cases. Two men were found to be suffering from silicosis and asbestosis but had been notified previously.

For the first time since examinations were introduced in 1925/26 there was no incidence of pulmonary tuberculosis in the mining industry.

The declining number of new cases of pneumoconiosis diagnosed must be viewed in the light of the declining numbers of men at risk in the industry. During 1972 there were only 1,992 men employed in the gold mining industry and of these only 916 worked underground. Unfortunately our review of the new cases of silicosis diagnosed in recent years has revealed that there are at least 16 men who commenced gold mining since the World War who have developed silicosis, with an average of some 15 years mining in the larger mines in the goldfields.

If the anticipated resurgence of gold mining occurs there must be increased emphasis on dust suppression and ventilation. Considerable assistance was given to the Mines Department during the year in the preparation of Regulations to this end under the Mines Regulation Act. A Mines Ventilation Board has also been established to set standards of purity for mine air. Improved medical surveillance of miners is also needed and a preliminary trial at Norseman where every miner had a lung function test and a questionnaire on respiratory symptoms was successful and appears practical.

Although there were no new cases of asbestosis the Wittenoom Mine continues to cast a long shadow. Seven former miners newly diagnosed as suffering from asbestosis were examined by the Pneumoconiosis Medical Board for compensation purposes. Dr. P. F. Maguire of the Tuberculosis Control Branch has brought the data on the fate of the Wittenoom miners up to date. A total of 137 men are known to have developed asbestosis with or without silicosis after working on the asbestos mine, and the length of exposure in some instances was as low as eight months. Of these 23 are known to have died and the causes of death are given in the table below :—

	No.
Pleural mesothelioma	5
Carcinoma of lung	4
{ Asbestosis	2 }
{ Cardio-respiratory failure	4 }
Coronary thrombosis, cardiac infarction	4
Others (gastric carcinoma, uraemia mycobacterial disease, unknown)	4

The high malignancy rate (40 per cent.) and the 5 malignant mesotheliomas are striking.

Pneumoconiosis Medical Board

185 applicants for Workers Compensation for pneumoconiosis were examined. There was a considerable increase in new claims (73 compared with 48 in 1971). This increase was due to a tendency for men leaving or intending to leave the industry to apply for examination without any medical evidence that they were suffering from pneumoconiosis and most of these were unsuccessful.

Other Dusty Trades

Medical examinations and chest X-ray surveys of other workers employed in dusty trades has been continued. 1,301 men had chest X-ray examinations.

There were four new cases of asbestosis diagnosed in the asbestos cement industry but this reflected the dusty conditions which have long since been improved.

There was one new case and one highly probable in men employed spraying asbestos for insulation and other purposes. It is difficult to maintain safe working conditions in this practice and draft model Asbestos Regulations have been referred to the Department of Labour for discussion and possible implementation. Dust sampling has not proved a satisfactory means of ensuring safe working practices but the volume of work and the number of men employed has greatly decreased. Spraying of asbestos has been prohibited entirely in some parts of the United States.

Sandblasting did not seem to present such a significant health hazard, partly due to increased and improved inspection and partly because of the decline in the amount of steel required to be treated.

Lead Workers

Tests and supervision of men engaged in work involving exposure to lead were carried out in co-operation with the Departments of Labour and Mines.

Altogether 184 urine tests were arranged through the Government Chemical Laboratories and 71 blood leads through the Public Health Laboratories.

Where suspect conditions were encountered personal samplers were used to measure lead exposure. Five lead workers were suspended temporarily because of increased lead absorption. An assay worker in a goldmine developed severe lead encephalopathy and peripheral neuritis. He has recovered after treatment but may have some residual disability. Working conditions in the assay offices had been allowed to deteriorate and major improvements have since been made.

Isocyanates

A survey of factories handling polyurethane was carried out to ascertain where isocyanates may constitute a health problem. Twenty-five premises were found to be using isocyanates either in manufacturing foam or in the production of polyurethane paint.

Air tests were carried out in a flexible foam factory and in a factory where a painter was sensitised to isocyanate while working near a polyurethane painted surface cured by radiant heat. Air testing for isocyanates in these premises will be continued and the results are difficult to predict because of the large variation in formulations and working conditions. Routine periodic Lung Function Tests on workers, using a Vitalograph, are also being done.

Compressed Air

All Metropolitan supplies of air for SCUBA divers were checked for carbon monoxide, hydrocarbons and smell. As a result several sources of sub-standard air were given attention either by repairs to the compressor or by changes in the air filtering system.

Several compressors supplying air direct to divers (Hookah Units) were also checked in the field for monoxide and smell. It is hoped to arrange for air samples from these units to be collected for laboratory testing.

Pesticides

During the year commercial pest control firms were required to be registered and the operators to become licensed in accordance with amendments to the Pesticide Regulations. This entailed checking vehicles, poison storage facilities and examination of applicants. Two members of the Occupational Health staff were engaged on administering these amendments, in association with the Chief Pharmacist.

Sixty-two companies have been registered and 183 operators licensed to carry out pest control work. Two applications were refused, 3 withdrawn and 5 withheld.

Of the applications for operator's licence two were refused and 8 withheld pending either further information or training. Initially a large number of operators had their licence withheld pending extra training. In order to assist these men a one day course of training was given and 25 operators attended.

Pest control vehicles were found to be generally unsatisfactory in respect to labelling of pesticides and in the case of utilities and trailers were inadequately secured against theft.

Follow up field supervision is desirable to ensure that the above defects are corrected and Regulations complied with. It is expected that a considerable number of new men will enter the industry each year and new chemicals and methods are certain to be introduced from time to time.

Five firms (registered pest control firms) were also registered to carry out commercial fumigation. Twenty-two men are approved for commercial fumigation and 18 to do their own fumigation.

The Department was notified of 27 ships requiring fumigation. Of these 22 were fumigated with methyl bromide and 5 with hydrogen cyanide. All vessels were not visited but where complications were anticipated a check on the operations was carried out.

Blood tests on a number of workers handling toxic materials were arranged, and in no instance was there any evidence that the health of employees had been affected.

Hearing Conservation Programme

There has been much more activity in this particular field. Many firms have shown an interest in reducing high noise levels and are assuming greater responsibility in the provision of protective equipment, ear muffs and plugs, as well as in the education and motivation of employees. Hearing Conservation Programmes were set up in nearly 30 different industries and 736 audiograms were done.

The following may be used as standard criteria of what constitutes an abnormal audiogram, based on ability to perceive speech.

500	1,000	2,000	3,000	4,000	Hz	
25	20	25	30	40	dB	Threshold

Using this standard we have analysed 601 of the audiograms as follows :

Industry	Total No. examined	Normal	Abnormal	per cent. Abnormal
Underground miners	385	124	261	67
Power House employees	21	7	14	67
Forestry employees	69	31	38	55
General workshops, etc.	126	78	48	39

The number with abnormal hearing may well be biased as men volunteer for examination and those with affected hearing may be more likely to attend.

The debate on and passage of the Noise Abatement Act late in the year prompted an interest in community noise and many complaints were received and investigated.

Medical Centres

Employers and groups of employers have asked for information regarding the establishment of medical centres and the employment of trained nurses. This is a development which must be encouraged and in the future consideration will be given to courses of training in Occupational Health nursing.

Dermatitis

A number of general enquiries were made. There were 20 complaints received.

In connection with the above and with the provision of cyanide antidote poison kits the Occupational Health sister visited 460 factories and other industrial complexes.

Kinetics

Hospitals. Lecture/demonstration services were routinely given to :

The Government School of Nursing
Albany Regional Hospital
Bunbury Regional Hospital
Kalgoorlie Regional Hospital
Mt. Henry Hospital
Manjimup Hospital
Princess Margaret Hospital
Royal Perth Hospital

for General Trained Nurses and Nursing Aides.

Sessions were also given at :

Denmark
St. Georges Anglican
Methodist Hospital
St. John of God, Kalgoorlie
Little Sisters of the Poor, Kalgoorlie
Pre-Nursing Students at Penrhos College.

Accidents to Hospital Staff

This department remained involved with the Metropolitan Hospitals Productivity Group while their topic of discussion was "Accidents to Hospital Staff". Three of the participating hospitals now have Safety Organisations which did not exist before the formation of the Group. Unfortunately otherwise there was general disinterest and apathy and the project lapsed.

The testing of non-lift, patient handling methods at Northam Hospital showed a high degree of staff acceptance of the Mecanaid hoist for bathing patients. Other non-lifting techniques fell into disuse with the passage of time. This degradation of technique was similar to that observed in manual lifting skills. Without reinforcement of knowledge and supervision, handling skills rapidly degenerate with consequent increase of strain and incidence of injury. This phenomenon can be observed in most hospitals and must be linked with the same apathy and disinterest which are the cause of strain injuries to nursing and other staff referred to before.

Industry

Training in handling techniques were given to Alcoa, Forward Downs and Foamlite. Lectures on "Posture or Work area design" were given to :

Occupational therapists

W.A.I.T.

Catering Courses

Factory Inspectors

and members of the Church of Christ.

Equipment

An electric wheel chair is being designed in conjunction with the Quadriplegic Association. The standard of imported electric wheel chairs is not high but the price is. A more sophisticated chair which can be easily transported by car is under construction and the Association is convinced that they can produce this improved design at considerable saving in cost to W.A. users.

Staff

During the latter part of the year Dr. D. D. Letham, Physician in Charge, relieved the Deputy Commissioner of Public Health.

Mr. D. J. Dunn, Inspector, joined the Occupational Health Division in July. He has had wide experience in the promotion of health and safety in Industry.

It has been increasingly necessary for Mr. W. H. Moyle, Senior Inspector, and Miss M. Wilkinson, Occupational Health Officer, to use modern techniques and instruments to measure noise, and sample dusts, gases, etc., in industrial hygiene and the staff of the Clean Air laboratory has provided expert guidance and help.

Education and other activities

In addition to previously stated activities the Division chaired, or was represented on the following :

N.H. & M.R.C. Occupational Health Committee

Air Pollution Control Council and Scientific Advisory Committee

Radiological Advisory Council and Medical Advisory Committee

Pneumoconiosis Medical Board

Noise Abatement Advisory Committee

Water Purity Committee

Poisons Advisory Committee

Electrical Safety in Hospitals Committee

Mines Ventilation Board

W.A.I.T. Council and Committees

National Fitness Council

Australian Council on Smoking and Health

Speech Therapy Committee

Nurses Registration Board

Occupational Therapy Board

Florence Nightingale Committee

Lectures, demonstrations, seminars, etc. were given to many groups including medical students, Health, Factory and Scaffolding Inspectors, Sandblasting organisations, etc.

CLEAN AIR SECTION

The activities of the section are included under the following headings.

A.—MONITORING FOR AIR POLLUTANTS.

B.—SPECIFIC INVESTIGATIONS AND TESTING.

C.—ADVISING ON AIR POLLUTION CONTROL AND INVESTIGATING COMPLAINTS.

D.—EDUCATION.

E.—STATUTORY DUTIES.

A.—MONITORING FOR AIR POLLUTANTS

1. Dust Monitoring

Complaints about dust have been more prevalent than complaints about other types of air pollution (of which there are very few) and have been received at a frequency similar to preceding years. The monitoring activities in this field have been the same as last year, as most of the time made available by the recruitment of extra staff has been directed towards increasing the monitoring of sulphur dioxide in the Kwinana area.

The Central Electricity Research Laboratory directional dust gauge is used for dust monitoring. It has the advantage that the source of the dust can be located directionally, that is to say, in a northerly, easterly, southerly or westerly direction. Furthermore, samples of the collected dust can be analysed for specific components which again can be related to the direction of the source.

Dust concentrations are expressed in units which represent the obscuration of light by the dust, and which are related to dirtiness which is the complaint-provoking factor.

Perth Area

During 1972 the number of dust gauges sited in the Perth metropolitan area remained constant at 19.

The Naval Base works of an alumina refinery company initiated a study of dust levels in the area surrounding the refinery. The Company installed 6 CERL gauges late in 1972, and this section is carrying out the laboratory assessment of the dust levels for the company and the company is analysing the dust for alumina.

The locations of the Public Health Department CERL gauges as at December 1972 were :—

December 1972

City Beach	Naval Base
East Perth	Maddington (2)
Lathlain Park	Gosnells
Welshpool (3)	Rivervale
Kewdale (3)	Jandakot (4)
Perth Airport	

For results see Appendix A.

Port Hedland

Complaints of dust from the two iron ore stockpile sites in Port Hedland continued to be received in 1972. Officers from this section visited Port Hedland on several occasions.

There has been an increase in the total dirtiness towards the end of the year compared with the preceding year. This could be partly attributed to the decision of one company to carry out its secondary and tertiary crushing processes at Port Hedland rather than at the mine.

This company is actively engaged in a programme of development designed to suppress dust emissions and an improvement should be apparent in the new year as these measures are implemented.

Mr. R. Britten, Health Surveyor, Shire of Port Hedland has continued to collect the dust samples from the eleven gauges and forward them to the section laboratory in Perth for processing.

At December 1972 the dust gauges were sited in Port Hedland as follows :

No.	Location
1.	P.W.D. yard, opposite Police Station, almost town centre.
2.	Water tank, Home Street, opposite hospital.
3.	Water tank, Spinifex Hill, adjacent to Shire Offices.
4.	Navigation beacon—Cooke Point.
5.	Transportable house—100 yards south of Leslie Salt Office at salt pans.
6.	On old Utah dredge site, Finucane Island.
7.	Near tennis courts, Finucane Island.
8.	West side of island, near ocean beach, Finucane Island.
9.	P.W.D. sewerage pumping station, north end of South Hedland.
10.	Port area, mounted on light stand approximately 65 feet above ground, Port Hedland town.
11.	Pretty Pool area, about 100 yards east of temporary caravan park.

Gauge No. 11 at the Drive-in was removed because of a decrease in manganese loading activities and transferred to the Pretty Pool area.

The dust samples from all the above sites have been analysed for iron and manganese expressed as Fe_2O_3 and MnO_2 every second month.

For results see Appendix B.

Cape Lambert

The four dust gauges at Cape Lambert were maintained during 1972. The higher dust levels in the Cape area have been due to increased activity in the area.

Mr. S. Cheverton, Regional Health Surveyor, Karratha, has collected the samples from the four gauges and has forwarded them to the section's laboratory in Perth for processing.

No.	Location
1.	Port area, Point Sampson
2.	Immediately south of Port area, Cape Lambert.
3.	North of Wickham Townsite.
4.	South of Wickham Townsite.

For results see Appendix C.

Esperance

The dust survey in the Esperance Port Authority area has continued in 1972. One gauge was damaged beyond repair during a storm in April and has not been replaced leaving three gauges for the survey.

The samples are collected by the Esperance Port Authority and forwarded to the Section's laboratory in Perth for processing. The dust samples are analysed for the nickel content and the results are expressed as per cent. Pentlandite.

For results see Appendix D.

Country areas

The dust gauge at a sawmill at Manjimup was maintained during the year.

Chemical analysis on dust has been carried out by the Government Chemical Laboratories.

2. Sulphur Dioxide and Particulate monitoring

Perth area

The plan for locating sulphur dioxide and particulate monitoring sites radially from the Kwinana area has continued. New sampling sites have been established at Crawley, South Coogee, Tuart Hill, Inglewood and Claremont.

Figure 1 shows the location of existing sampling sites. The sampling sites established in 1971 were maintained through 1972. One sampling site, that at Wattleup was removed during the year as the State Electricity Commission have a site nearer to the Wattleup grid point and for which data are available.

Six battery powered sampling sites were installed in the South Coogee region as part of the Coogee Air Pollution Study in the month of October. I wish to thank the residents of many areas who have volunteered to assist the Section in housing and operating these sampling stations. For results see Appendices E and F.

Kalgoorlie

Monitoring for sulphur dioxide has continued from a site near the centre of the town during 1972.

For results see Appendix G.

3. Oxides of Nitrogen Monitoring

Perth Area

Three sampling sites, operating on a twenty four hour time base have been established during the year. The sites are located at Christchurch Grammar School, Crawley, and 57 Murray Street, Perth. These positions are indicated on Figure 1.

For results see Appendix H.

Motor Vehicles

City surveys and monitoring for pollutants continued under the following categories :

1. Pedestrian exposure tests, measured on the footpath at locations throughout the city (see figure 2) and Appendix I.
2. 24 hour exposure tests, measured in the city at 57 Murray Street, Perth. See appendices J, K, L and M.

B.—SPECIFIC INVESTIGATIONS AND TESTING

1. Fluorine

The emissions of fluorides from six superphosphate manufacturing works were measured. A considerable improvement was evident at one works which has had a water scrubber installed before its exit chimney. The scrubbing facilities at most other works have been improved.

A special investigation at one superphosphate works, being conducted in conjunction with the Department of Agriculture and the Government Chemical Laboratories has continued and fluoride emissions from the works have been measured three times during the year in conjunction with sampling of leaves from trees and pasture surrounding the works by the Department of Agriculture.

For results see Appendix N.

Fluoride emissions from three brick and clay product works were measured during the year.

For results see Appendix O.

2. Miscellaneous

Many brief investigations for Government Departments and private firms were carried out during the year. Such investigations have included the effect of two antipollution devices for motor vehicle exhaust systems and the testing of the contents of compressed air cylinders, used for SCUBA diving, for carbon monoxide and hydrocarbons.

C.—ADVISING ON AIR POLLUTION CONTROL

Complaints

The number of written and telephoned complaints received during the year again exceeded that received in the previous year. The continuing increase in the number of these complaints results from an increasing public awareness of air pollution sources and effects.

Notwithstanding the considerable effort of industries to control emissions, some can be a genuine source of complaint for nearby residents. Most complaints arise from the unfortunate siting of certain industries relative to nearby residential areas.

Advice

Many hundreds of enquiries were received by the Section from members of the public and students for information and material for projects.

D.—EDUCATION

Lectures were given during the year at Mt. Lawley Technical School and Western Australian Institute of Technology.

E.—STATUTORY DUTIES

All meetings of the Scientific Advisory Committee, of which the Physician in Charge of the Division is Chairman, were attended. Numerous reports have been prepared for the Committee by the Senior Engineer and his staff.

Inspections of premises by these Officers have been carried out as required by the Scientific Advisory Committee.

The Senior Engineer (Clean Air) is the State representative on the Air Pollution Sub-Committee of the National Health and Medical Research Council.

STAFF

During the month of July, Dr. D. J. Martin was appointed as a Scientific Officer and Mr. G. Hepworth and Mr. R. Taylor were appointed as Laboratory Assistants. Mr. R. Powell became Senior Scientific Officer at this time.

With the extra staff the Section continued to expand its activities, particularly in the second half of the year.

Towards the end of the year the Section began work associated with the Coogee Air Pollution Study. This work which will continue during the next year has placed a considerable strain on the resources of the Section and additional laboratory staff are urgently required to reduce the overtime worked and allow the continuation of non-routine work. The staff have continued to work willingly and enthusiastically many hours outside their normal hours.

During the year Mr. Powell was awarded a W.H.O. Travelling Fellowship which will cause him to be absent for the first six months of 1973.

FIGURE 1

SULPHUR DIOXIDE, PARTICULATES and OXIDES of NITROGEN

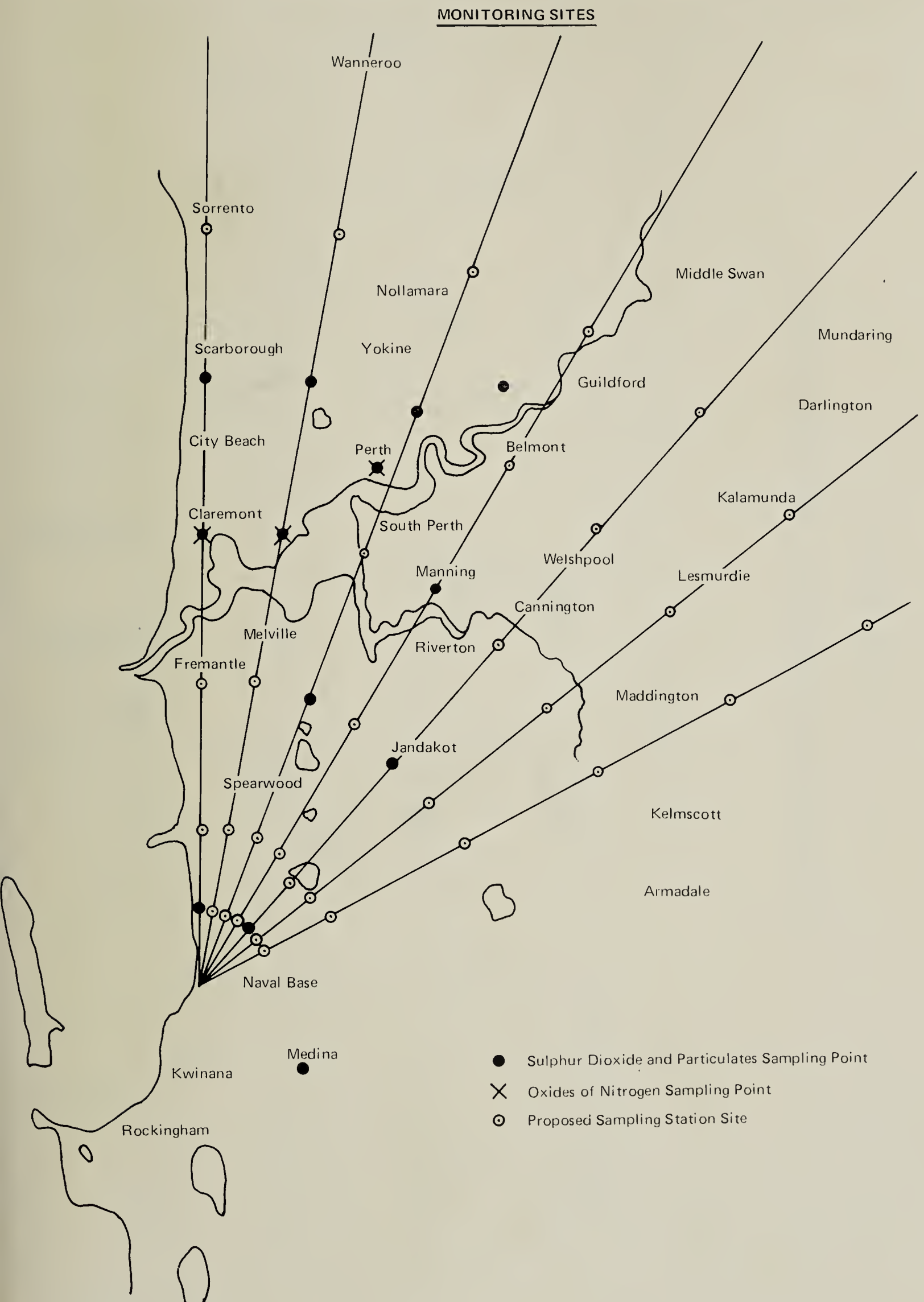
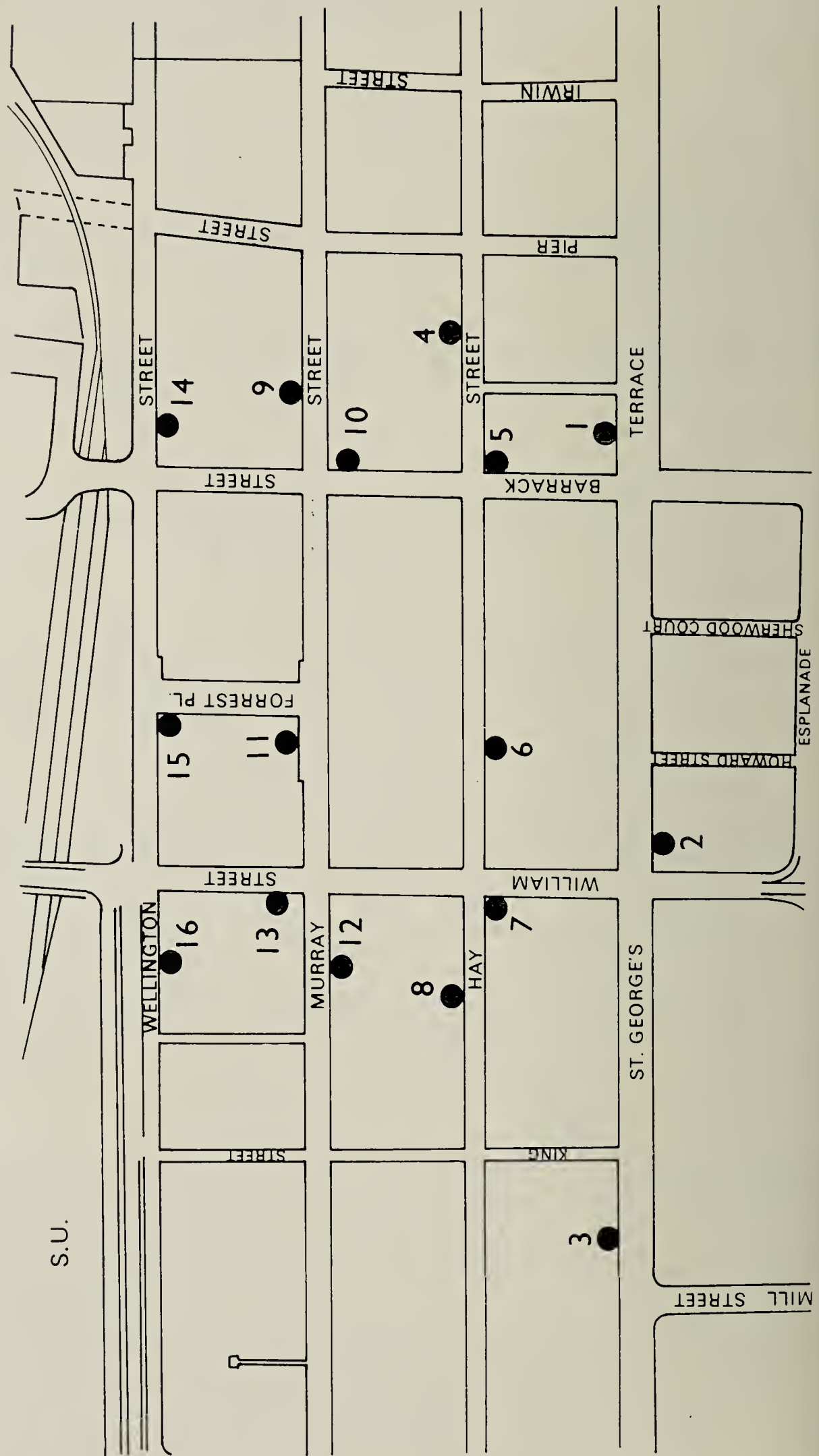


FIGURE 2
PEDESTRIAN EXPOSURE TESTING SITES



Appendix A

Dust Testing Programme—Perth Metropolitan Area 1972

Mean total dirtiness for the twelve months period January–December, 1972.

Gauge				Total Dirtiness
City Beach	....	....	....	1.5
East Perth	....	....	....	1.4
Lathlain Park	....	....	....	1.9
Welshpool 1	....	....	....	2.1
Welshpool 2	....	....	....	2.5
Welshpool 3	....	....	....	2.2
Kewdale 1	....	....	....	3.3
Kewdale 2	....	....	....	2.7
Kewdale 3	....	....	....	3.1
Perth Airport	....	....	....	2.2
Naval Base	....	....	....	3.1
Maddington 1	....	....	....	7.7
Maddington 2	....	....	....	4.9
Gosnells	....	....	....	3.3
Rivervale	....	....	....	2.9
Jandakot 1	....	....	....	3.0
Jandakot 2	....	....	....	9.0
Jandakot 3	....	....	....	6.1
Jandakot 4	....	....	....	3.5

Appendix B

DUST TESTING PROGRAMME—PORT HEDLAND 1972

Gauge	Jan.		Feb.		March		April		May		June	
	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%
1	14.9	....	26.4	48	6.2	....	24.6	42	16.4	....	10.6	43
2	6.8	....	30.1	52	3.8	....	8.3	42	9.3	....	15.1	39
3	6.0	....	31.9	42	2.6	....	9.9	7	5.5	....	2.4	6
4	4.8	....	15.9	26	2.1	....	2.7	6	2.7	....	3.2	12
5	10.1	....	24.6	24	4.1	....	4.3	8	3.8	....	6.8	13
6	10.2	....	286.9†	77	10.1	....	28.4	60	39.0	....	24.2	60
7	4.5	....	14.6	43	4.5	....	4.6	24	4.8	....	7.2	24
8	3.8	....	15.5	29	4.3	....	24.5	44	13.4	....	11.1	48
9	9.1	....	16.8	6	6.6	....	7.7	4	9.7	....	10.1	5
10	16.9	....	91.2*	66	18.3	....	17.8	53	36.5	....	25.7	62
11 ....	....	....	7.7	12	2.6	....	2.7	4	2.4	....	1.8	5
12 ....	....	....	....	....	....	....	....	....	....	....	....	....

1972—continued

Gauge	July		Aug.		Sept.		Oct.		Nov.		Dec.	
	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%	T.D.	%
1	20.8	....	13.4	53	33.2	....	44.9	45	18.5	....	17.4	50
2	15.1	....	10.5	60	16.0	....	21.9	51	10.8	....	22.3	45
3	6.0	....	2.6	25	5.7	....	14.4	26	11.5	....	9.2	28
4	5.9	....	4.8	21	7.5	....	11.0	32	4.7	....	10.1	14
5	7.7	....	5.5	12	5.5	....	7.1	12	9.1	....	7.5	22
6 ....	....	....	10.7	53	19.6	....	31.2	63	12.2	....	47.7	73
7	6.2	....	9.0	46	8.2	....	9.4	29	9.0	....	8.8	36
8	17.5	....	8.5	58	8.1	....	20.4	50	5.6	....	3.8	20
9	7.5	....	5.9	4	9.6	....	12.7	4	13.3	....	15.2	4
10	61.0	....	40.4	65	18.5	....	39.3	65	6.6	....	17.0	60
11	2.8	....	3.8	15	2.8	....	6.6	29	3.8	....	6.0	19
12 ....	....	....	....	....	....	....	....	....	....	....	....	....

% = per cent. iron ore in total dust from gauge.

T.D. = total dirtiness.

* approx. 50% of the dust came from the west and 30% from the east.

† Approx. 90% of the dust came from the north and only 4% from the east.

Appendix C
DUST TESTING PROGRAMME—CAPE LAMBERT 1972

Gauge	Monthly Total Dirtiness											
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.3	12.3	5.5	11.3	11.7	7.3	30.5	9.6	2.5	4.5	4.5	12.8
2	13.7	24.3	9.0	13.8	16.6	15.8	41.0	11.2	2.2	7.2	3.4	12.1
3	10.4	25.6	9.8	6.4	7.1	13.7	16.0	6.2	2.7	2.9	3.4	7.6
4	9.8	19.3	3.6	3.5	6.7	10.9	19.8	4.0	1.7	2.6	1.5	6.0

Appendix D
ESPERANCE PORT AUTHORITY DUST SURVEY 1972

Gauge					Jan.		Feb.		Mar.		April		May	
					T.D.	%NiS	T.D.	%NiS	T.D.	%NiS	T.D.	%NiS	T.D.	%NiS
1 W	....	....	....	....	23.2	0.45	15.7	1.41	31.5	11.17	2.9	3.86	2.3	3.81
S	....	....	....	....		3.72		2.59		9.35		7.08		8.04
E	....	....	....	....		0.99		0.45		24.24		8.49		18.93
N	....	....	....	....		1.50		0.45		3.86		1.99		4.45
2 W	....	....	....	....	4.1	2.27	2.1	1.95	3.2	1.14	4.5	1.68	1.9	1.63
S	....	....	....	....		3.81		3.18		8.31		2.27		1.68
E	....	....	....	....		5.18		4.49		18.07		1.45		7.17
N	....	....	....	....		8.94		0.91		2.68		1.09		1.04
3 W	....	....	....	....	2.1	0.77	1.1	0.41	2.6	1.27	1.0	0.50	1.7	0.36
S	....	....	....	....		1.14		1.23		1.32		0.14		0.50
E	....	....	....	....		2.32		2.13		5.99		14.62		1.68
N	....	....	....	....		0.64		0.95		1.54		0.23		0.47
4 W	....	....	....	....	2.4	0.04	1.4	0.32	1.6	0.41	....	....	....	....
S	....	....	....	....		0.23		0.18		0.04		....		....
E	....	....	....	....		0.32		0.36		1.18		....		....
N	....	....	....	....		0.09		0.41		0.50		....		....

1972—continued

Gauge					June		Sept.-Oct.		Oct.-Nov.		Nov.		Dec.	
					T.D.	%NiS	T.D.	%NiS	T.D.	%NiS	T.D.	%NiS	T.D.	%NiS
1 W	....	....	....	....	6.5	0.27	2.8	1.59	7.4	0.41	7.3	1.86	....	....
S	....	....	....	....		2.18		0.36		1.77		0.18		....
E	....	....	....	....		7.45		2.50		1.00		0.64		....
N	....	....	....	....		1.36		3.64		0.36		0.14		....
2 W	....	....	....	....	3.3	0.91	1.3	0.36	2.8	0.18	2.3	0.64	....	....
S	....	....	....	....		1.04		0.55		0.23		0.50		....
E	....	....	....	....		11.85		6.54		1.27		1.73		....
N	....	....	....	....		0.50		4.64		0.32		0.55		....
3 W	....	....	....	....	2.4	0.18	4.4	3.91	3.0	0.64	1.5	0.91	....	....
S	....	....	....	....		0.45		1.55		0.32		0.32		....
E	....	....	....	....		3.40		0.68		0.86		0.50		....
N	....	....	....	....		0.27		3.18		1.73		0.59		....
4 W	....	....	....	....	....	....	....	....	....	....	....	....	....	....
S	....	....	....	....		....		....		....		....		....
E	....	....	....	....		....		....		....		....		....
N	....	....	....	....		....		....		....		....		....

T.D. = Total Dirtiness.
% NiS = % 2 FeS NiS Pentlandite
The east collectors of each gauge (1E, 2E, 3E, 4E) face the port nickel ore storage and ship loading area.

Appendix E

METROPOLITAN PARTICULATES (SMOKE) CONCENTRATIONS 1972
(Results are all expressed in micrograms per cubic metre)

Averages

Site	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Yearly Average	Highest 24 Hour Average	Lowest 24 Hour Average
Perth	5	8	6	9	12	11	9	5	6	5	4	3	7	44	0
Bentley	1	3	4	5	6	5	6	2	3	2	3	2	4	24	0
Jandakot	0	1	2	3	3	2	2	1	1	1	2	1	2	26	0
Medina	2	3	2	3	3	2	2	1	2	1	2	1	2	17	0
Bayswater	4	5	5	9	13	13	9	4	5	5	5	3	7	30	0
Wembley Downs	2	4	.....	5	5	5	5	2	5	2	2	3	3	17	0
Kardinya	1	2	2	2	3	4	3	4	2	4	7	5	3	87	0
Wattleup	2	2	2	4	4	3	2	0	1	1	2	.....	2	17	0
Crawley.....	.....	.....	.....	.....	.....	.....	.....	2	5	3	8	2	4	128	0
South Coogee .....	.....	.....	.....	.....	.....	.....	.....	.....	2	2	4	1	2	45	0
Tuart Hill .....	.....	.....	.....	.....	.....	.....	.....	.....	5	3	5	3	4	16	0
Inglewood .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	3	3	3	17	0
Claremont .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	3	2	2	12	0

Appendix F

METROPOLITAN SULPHUR DIOXIDE CONCENTRATIONS 1972
(Results are all expressed in micrograms per cubic metre)

Averages

Site	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Yearly Average	Highest 24 Hour Average	Lowest 24 Hour Average
Perth	24	26	20	26	25	20	10	5	6	10	27	30	19	90	0
Bentley	20	11	11	11	14	10	6	2	2	4	6	5	9	96	0
Jandakot	7	7	6	10	3	5	5	3	4	3	1	1	5	39	0
Medina	5	6	7	16	6	10	5	11	6	5	4	9	8	80	0
Bayswater	11	31	14	19	19	13	7	4	5	3	1	2	11	214	0
Wembley Downs	10	5	7	4	4	1	0	1	1	2	4	3	4	33	0
Kardinya	16	13	10	10	8	4	3	4	5	4	17	13	9	65	0
Wattleup	24	21	22	27	7	7	6	5	9	7	15	.....	14	80	0
Crawley.....	.....	.....	.....	.....	.....	.....	.....	1	0	3	6	8	4	55	0
South Coogee .....	.....	.....	.....	.....	.....	.....	.....	.....	11	8	24	14	14	191	0
Tuart Hill .....	.....	.....	.....	.....	.....	.....	.....	.....	1	4	3	1	2	15	0
Inglewood .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	5	6	5	28	0
Claremont .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	3	6	3	45	0

Appendix G

KALGOORLIE SULPHUR DIOXIDE CONCENTRATIONS 1972
(Results are all expressed in micrograms per cubic metre)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Monthly average	8	8	2	0.6	2	0	0	0.1	0	0.2	0.3	5
Highest 24 hour average	72	77	11	8	37	0	0	3	0	3	8	72
Lowest 24 hour average	0	0	0	0	0	0	0	0	0	0	0	0
Highest one hour average	820	400	190	110	270	0	0	80	0	53	110	450
Lowest one hour average	0	0	0	0	0	0	0	0	0	0	0	0

Appendix H

METROPOLITAN OXIDES OF NITROGEN CONCENTRATIONS 1972
(Results are expressed in micrograms per cubic metre)

Monthly Averages

	Aug.	Sep.	Oct.	Nov.	Dec.	Highest 24 hour average	Lowest 24 hour average
Crawley	19	20	12	8	10	80	0
Claremont .....	.....	.....	17	14	10	53	0

Appendix I
PEDESTRIAN EXPOSURE TESTS 1972

Date	Site No.	Carbon Monoxide			Total Hydrocarbons			Nitrogen Oxides 10 hr. av.	Lead 10 hr. av.	Benzoc- Pyrene 10 hr. av.	Particu- lates 10 hr. av.
		parts per million			parts per million						
		10 hr. av.	Max. hr. av.	Min. hr. av.	10 hr. av.	Max. hr. av.	Min. hr. av.				
20/1/72	4	3.5	5.8	2.3	...	...	...	65	1.1	<0.1	171
28/1/72	5	6.5	9.5	4.3	...	...	...	90	4.1	<0.1	134
10/2/72	7	9.8	15.3	6.8	...	...	...	213	6.5	<0.1	211
17/2/72	11	6.7	11.5	4.3	...	...	...	94	5.0	<0.1	59
24/2/72	13	14.6	19.0	12.0	...	...	...	235	4.0	<0.1	115
2/3/72	14	12.3	15.3	7.8	...	...	...	167	7.3	0.2	203
8/3/72	16	9.1	12.8	6.8	...	...	...	278	8.6	<0.1	313
16/3/72	1	5.8	8.8	3.0	...	...	...	115	4.0	<0.1	134
24/3/72	8	1.3	2.3	0.5	...	...	...	52	2.1	<0.1	133
28/3/72	5	4.9	9.3	2.5	...	...	...	123	5.0	<0.1	370
13/4/72	9	5.2	9.8	1.8	...	...	...	211	...	0.3	223
20/4/72	3	4.8	6.5	4.0	...	...	...	77	...	<0.1	...
12/5/72	4	12.6	21.8	7.3	...	...	...	373	...	1.7	293
26/5/72	5	10.2	21.8	5.8	...	...	...	92	5.2	<0.1	257
2/6/72	14	21.1	32.0	14.0	...	...	...	182	7.7	<0.1	252
28/6/72	13	11.4	20.8	7.8	...	...	...	278	3.7	<0.1	229
20/7/72	11	5.0	15.3	2.0	...	...	...	157	4.5	<0.1	160
27/7/72	7	13.3	26.8	10.0	...	...	...	209	3.3	<0.1	1950
3/8/72	16	8.3	18.5	1.8	...	...	...	318	7.6	0.11	175
9/8/72	5	7.1	16.5	2.8	...	...	...	94	5.7	<0.1	159
18/8/72	8	4.9	6.0	4.0	1.7	2.0	1.4	94	5.7	<0.1	104
25/8/72	3	8.6	14.0	5.0	2.3	2.8	1.8	123	7.9	<0.1	137
29/8/72	9	8.3	13.8	6.3	2.2	2.8	1.9	180	9.6	<0.1	207
31/8/72	17	7.4	9.0	6.8	4.4	7.0	2.8	88	5.0	<0.1	143
6/9/72	14	11.6	16.5	9.0	1.8	2.2	1.7	234	8.8	<0.1	224
12/9/72	13	11.4	18.5	9.0	2.2	3.0	1.7	282	7.3	0.15	272
19/9/72	1	16.2	22.5	13.0	2.6	3.3	2.0	226	10.0	0.38	337
26/9/72	3	11.9	14.8	9.0	3.5	4.2	3.0	155	6.7	0.28	237
4/10/72	4	6.4	7.0	5.8	1.3	1.7	1.2	69	3.1	<0.1	164
11/10/72	16	10.0	16.3	8.0	3.9	5.3	1.8	210	7.5	0.30	214
13/10/72	11	6.2	12.0	3.8	2.9	4.2	2.4	53	1.7	0.11	155
17/10/72	7	10.0	13.8	6.8	1.9	2.3	1.6	42	4.6	0.23	276
26/10/72	8	4.3	7.3	3.0	1.7	2.6	1.1	50	4.3	<0.1	111
9/11/72	14	9.2	14.5	5.5	0.9	1.2	0.7	139	2.5	<0.1	180
14/11/72	15	16.8	22.0	14.3	2.3	3.0	1.9	278	9.3	0.15	226
23/11/72	5	8.5	10.3	5.8	1.4	2.3	0.9	50	2.3	<0.1	224
8/12/72	9	8.7	11.0	4.8	4.3	7.1	2.4	109	5.2	0.15	160

Appendix J

24 HOUR EXPOSURE TESTS TAKEN AT 57 MURRAY STREET, PERTH, 1972
(Carbon Monoxide—Results expressed in parts per million)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oet.	Nov.	Dee.
Monthly average	4·0	3·8	4·4	3·6	3·9	3·2	1·7	2·5	2·5	1·9	4·4
Highest 24 hour average	4·8	5·8	7·7	4·9	6·1	4·8	3·7	5·0	4·4	3·3	7·3
Lowest 24 hour average	3·3	2·6	2·7	1·7	2·0	1·4	0·3	0·6	0·9	0·7	2·5
Highest 1 hour average	6	18	12	13	13	11	9	9	10	8	9
Lowest 1 hour average	2	1	1	1	0	1	0	0	0	0	1

Yearly average 3·2

Appendix K

24 HOUR EXPOSURE TESTS TAKEN AT 57 MURRAY STREET, PERTH, 1972
(Nitrogen Oxides—Results expressed in microgrammes per eubic metre)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oet.	Nov.	Dee.
Monthly average	24·2	23·0	32·3	44·7	47·7	37·5	38·2	34·9	32·6	27·8	21·0	18·8
Highest 24 hour average	40·1	57·9	60·1	79·7	106·3	77·1	59·2	63·4	45·5	47·0	33·5	32·5
Lowest 24 hour average	17·6	15·3	8·1	26·1	14·5	19·0	14·1	14·7	17·4	15·6	13·1	8·6

Yearly average 31·9

Appendix L

24 HOUR EXPOSURE TESTS TAKEN AT 57 MURRAY STREET, PERTH, 1972
(Total Hydrocarbons—Results expressed in parts per million)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oet.	Nov.	Dee.
Monthly average	1·2	1·2	1·4	0·9	0·7	0·7
Highest 24 hour average	1·7	1·6	2·2	1·1	1·3	0·9
Lowest 24 hour average	1·0	1·0	1·0	0·7	0·5	0·5
Highest 1 hour average	3·0	3·2	2·8	2·3	2·0	1·4
Lowest 1 hour average	1·0	0·5	0·9	0·6	0·4	0·4

Yearly average 1·0

Appendix M

24 HOUR EXPOSURE TESTS TAKEN AT 57 MURRAY STREET, PERTH, 1972
(Lead—Results expressed in micrograms per eubic metre)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oet.	Nov.	Dee.
Monthly average	0·4	0·6	0·8	1·2	1·2	0·6	1·0	0·5	0·7	0·6	0·7	0·7
Highest 24 Hour average	0·7	1·2	1·3	3·4	3·6	1·6	2·8	1·7	2·1	1·1	3·1	1·1
Lowest 24 hour average	0·2	0·4	0·3	0·2	0·1	0·1	0·3	0·1	0·1	0·2	0·2	0·2

Yearly average=0·8

Appendix N

EMISSIONS OF FLUORIDE FROM SUPERPHOSPHATE WORKS
(Based on manufacture rates supplied December 1972)

Works	Measured Average F Emission during Mixing (lbs/hr)	Average Daily Emission F* (lbs/hr)	Maximum Daily Emission F* (lbs/hr)
Kwinana 	2·1	1·2	1·5
Bayswater 	1·3	0·9	0·9
Geraldton 	0·2	0·1	0·1
Bunbury 	0·2	0·1	0·1
Albany 	0·2	0·1	0·1
Esperance 	0·8	0·2	0·2

* Assuming “ down time ” is of the same duration each day.

TESTING OF EMISSIONS OF FLUORIDE AT A
SUPERPHOSPHATE WORKS AT BUNBURY

	Average Emission over Test (Pounds per hour)	Maximum Hourly Emission (pounds)
February 	0·5	0·7
September 	0·2	0·25
November 	0·3	0·4

Appendix O

EMISSIONS OF FLUORIDE FROM BRICK AND CLAY
PRODUCTS WORKS

Works	Lbs./hr. F in flue gas	Approximate yearly output of fluorine (lbs./hr.) calculated from estimated annual production
Midland 	2·0 (Kiln No. 4)	10
Armadale 	8·8 (over 3 Kilns)	10
Byford 	9·6 (over 1 Kiln)	13

Appendix XII

State X-Ray Laboratory

B. E. King, M.Sc., B.Sc. Physicist-in-Charge

INTRODUCTION

Measures for the control of the hazards to health arising from the use of ionising radiation in Western Australia came into operation in 1959. The legislation which made this possible, the Radioactive Substances Act, was passed by the State Parliament in 1954, and subsequently regulations provided for in the Act were drafted. The regulations were issued in 1958 and the first licences for the use of radioactive substances or X-ray equipment were granted in 1959.

The Act requires that X-ray equipment used by Medical Practitioners or Dentists for the production of radiographs be registered and that users of all other X-ray equipment and of radio-active substances be licenced. A licence or registration is granted by the Minister for Health on the advice of the Radiological Advisory Council, a committee of experts appointed under the Act and representing professions with special knowledge in the uses and effects of radiation. The Council is chaired by Dr. D. D. Letham, Physician in Charge, Occupational Health and it is advised on medical and dental matters by two advisory sub-committees.

Table 1
LICENCES AND REGISTRATIONS

<i>Licences current at 31st December, 1972—</i>							
Medical and Dental	....	....	....	....	....	....	133
Non-Medical	....	....	....	....	....	....	128
Combined Medical and Non-Medical	....	....	....	....	....	....	2
Total	....	....	....	....	....	....	263
Net increases in licences in 1972							19

<i>Registrations current at 31st December, 1972—</i>							
Medical	....	....	....	....	....	....	43
Dental	....	....	....	....	....	....	214
Total	....	....	....	....	....	....	257
Net increase in Registrations in 1972							19

During 1972, the number of licences and registrations each increased by 8 per cent. The Radiological Advisory Council held three meetings, the Medical Committee four, and the Dental Advisory Committee, one.

In the 1971 Annual Report, reference was made to shortcomings in the Radioactive Substances Act which impeded proper control of radiation hazards. There have been many developments in the use of ionising radiation since the Act was passed in 1954 and the Council, after consultation with the Crown Law Department, has made detailed recommendations for revision which should enable the legislation to keep pace with current applications of ionising radiation and atomic energy. The recommendations include measures to control the hazards from sources of non-ionising radiation such as microwaves and lasers.

DUTIES OF THE LABORATORY

The Physics Division of the Laboratory is responsible to the Radiological Advisory Council for the administration of the Radioactive Substances Act. To this end, the Laboratory provides the necessary secretarial, administrative and technical facilities. The Laboratory assists users of ionising radiation with advice on radiation physics and with a calibration service for x-ray equipment and radiation measuring instruments. The Laboratory conducts an educational programme for users of radiation and provides a film badge monitoring service. Broadly, the Laboratory is concerned with delineating the nature of the exposure of the population to radiation and with measures for the control of this exposure. The work of the Laboratory is described in more detail in succeeding sections of this report.

FIELD WORK

Laboratory personnel make regular visits to the premises of users of x-rays and radioactive substances. New users are advised on radiation protection requirements and existing establishments are visited to ensure that previous recommendations are being followed and that a satisfactory standard of radiation protection is being maintained. These visits contribute to the maintenance of radiation exposure of personnel at a low level and minimise the possibility of a serious radiation accident. In addition to inspecting the facilities and safety procedures, the Laboratory's Radiation Officers assist those concerned to make more effective use of radiation by advising on areas within their competence, such as medical and veterinary radiography.

The frequency of visits is determined by the extent of the radiation hazard presented. Industrial radiography operations are visited a number of times each year whereas small hospitals and medical and dental practices may be visited at intervals of one to two years. The location of some hospitals and industrial establishments in remote areas remains a severe obstacle to making regular visits. During 1972, over 300 visits were made, an increase of more than 100 per cent. over 1971. This was made possible by the appointment of an additional radiation officer early in the year. Ten country tours were undertaken, four of which were by air.

The measurement of the x-ray output of fluoroscopic x-ray units is carried out routinely when these units are inspected. This is to ensure that the equipment is operated within the recommendations of the International Commission on Radiological Protection. The Laboratory's sub-standard x-ray Dosemeter is used for the calibration of the output of superficial therapy x-ray equipment used by Dermatologists and hospitals. Seven units were calibrated in 1972.

FILM BADGE RADIATION MONITORING SERVICE

The Film Badge Service, which has been conducted by the Laboratory for 15 years, provides a valuable means of detecting and assessing exposure to radiation of persons who use x-rays and radioactive substances. In 1972, 21,863 films were processed and the doses evaluated. The number of persons monitored increased by 5 per cent. over the figure for 1971. The numbers monitored in various occupational groups are shown in Table 2.

NUMBER OF PERSONS USING FILM BADGE MONITORING IN 1972 SHOWN BY EMPLOYER GROUPS

Medical, Hospitals	....	....	....	....	....	308
Medical, General Practitioners	....	....	....	....	....	112
Medical, Radiologists and Miscellaneous	....	....	....	....	....	88
Chiropractors	....	....	....	....	....	22
Dentists	....	....	....	....	....	821
Non-Medical	....	....	....	....	....	514
Total	....	....	....	....	....	1,865

For most occupational groups, the doses registered by the films have shown a marked decline during the past 10 years, and in some groups, such as dentists, the average dose is extremely small. This can be accounted for by the increased emphasis placed on radiation safety and by technical improvements in dental x-ray films and equipment. In 1973, the need for the use of film badges and frequency of change of films will be reviewed for each occupational group to determine whether all persons now enrolled on the film badge service need to continue being monitored and whether the period between film changes can be extended.

EDUCATION

An extremely important part of the Laboratory's work is the participation in education of users of x-ray equipment and radioactive substances. Qualified persons in many professions need to use ionising radiation, yet most professions do not provide any training in this field. Short courses provided by the Laboratory or jointly with the W.A. Institute of Technology are considered to be of great importance in achieving a satisfactory standard of radiation safety in medicine and industry. The following short courses were presented in 1972, with a total student enrolment of 31.

Radiation Safety in the Use of Radiation Gauges in Industry
(Two courses in Perth, one at Dampier).

Radiation Safety for Hospital Engineers
(One course).

Laboratory Staff assist a number of institutions by lecturing on radiation topics as part of the training of the following groups :

W.A. Institute of Technology — Diagnostic Radiographers

Mt. Lawley Technical College — Health Surveyors
— Health Technologists

Leederville Technical College — Veterinary Nurses

Sir Charles Gairdner Hospital — Nurses

Perth Dental Hospital — Dental Nurses

Individual lectures were given to the following groups :

W.A. Fire Brigade — Radiation Hazards in Fire Control

Royal Perth Hospital Medical Physics Dept. — Siting and Design of Fume Cupboards

Institute of Hospital Engineers — Radioactive Waste Disposal

In March members of the Australian Institute of Physics, and in August students from the Melville High School visited the Laboratory for a lecture on the work of the Physics Division and an inspection of the facilities.

RADIATION MONITORING AND COUNTING EQUIPMENT

The Laboratory is equipped with a range of monitoring instruments for the field measurement of alpha, beta and gamma and x-radiation. The gamma and x-ray sensitive instruments cover a wide range of radiation energies from the x-ray emission of colour television receivers and discharge tubes used for demonstration purposes in schools, to the high energy gamma rays from Cobalt-60.

Low level gamma counting equipment with a 512 channel analyser is installed in the laboratory for the measurement and analysis of gamma emitting radioactive substances.

RADIOACTIVITY IN THE ENVIRONMENT

The Laboratory has a continuous monitoring programme for radioactivity in rainwater and the atmosphere. Short term increases in radioactive fallout were detected shortly after the French Nuclear tests in the Pacific Ocean. The increases were much smaller than those detected in 1971.

RADIATION STANDARDS

The Laboratory maintains a Sub-Standard X-ray Dosemeter and Standard Radio-active Sources, to permit calibration of a wide range of monitoring equipment and superficial therapy X-ray equipment.

TECHNICAL ADVICE

Laboratory staff spend considerable time in giving advice to applicants for licences and registrations, to licencees and to members of the public, on radiation protection and radiation health problems. This includes advice on the design of radioisotope laboratories and on radiation protection in industrial, medical, dental, chiropractic and veterinary establishments. Nineteen requests for advice on radiation protection design and forty one requests for technical advice were dealt with.

NON IONISING RADIATION

The Laboratory is now responsible for monitoring sources of non-ionising radiation such as microwaves and lasers. There is no legislation covering the hazards from these radiations, but the users are advised on protective measures. All microwave ovens in use in the State are progressively being monitored. Twenty-three of those monitored during 1972 exhibited leakage in excess of the N.H. and M.R.C.'s recommended limit of $5\text{mW}/\text{cm}^2$ at 5cm. Of these, 15 leaked in excess of $20\text{mW}/\text{cm}^2$. Appropriate recommendations are being made to the users.

STAFF

In July, Mr. D. W. K. Collins, Physicist resigned to join the Medical Physics staff of the Sir Charles Gairdner Hospital. A replacement was expected to be appointed early in 1973. An additional Radiation Officer, Mr. J. Gaunt was appointed in April 1972.

The volume of work handled by the Division increases each year, and following the resignation of Mr. Collins, the remaining staff were unable to meet their commitments to the Council with the same efficiency as in the past. It is hoped that this situation will improve with the appointment of a replacement for Mr. Collins in 1973.

ATTENDANCE AT MEETINGS, MEMBERSHIP OF COMMITTEES ETC.

The Physicist in Charge continued as a member of the N.H. and M.R.C.'s Radiation Health (Standing) Committee and its Dose Assessment Sub-Committee. These Committees met in Melbourne in August.

The Physicist in Charge delivered a paper entitled " Estimation of the Gamma-Ray Natural Background Radiation Dose to the Population of Perth " by D. B. Yeates and B. E. King at the 12th Annual Meeting of Physics and Engineering in Medicine and Biology held in Hobart.

L. M. Davies delivered a paper entitled " Fume Cupboards for Use in Radioisotope Laboratories " at the same meeting. This paper was the result of work carried out by Mr. Davies in co-operation with WAIT-AID Pty. Ltd. and the Public Works Department.

ACKNOWLEDGEMENTS

Appreciation for their continued enthusiastic and conscientious work is expressed to the staff of the Physics Division of the Laboratory. The co-operation of the staff of the Engineering Division is also greatly appreciated.

Appendix XIII

Report on Technical Information Service and Library

J. F. Woolcott, M.B., Ch.B., Medical Officer-in-Charge

“ In the modern world, no productive activity can be carried out successfully unless adequate information can be made quickly available to specialists and research workers ”.

Unesco “ *The Planning of Library and Documentation Services.*” 1970.

INTERSTATE AND OVERSEAS LOANS

From a noted fall in 1971, the previously discernible upward trend in these loans has again occurred. For the first time Papua-New Guinea appears in the loan list.

Table 1

Country or State	1968	1969	1970	1971	1972
New South Wales	10	19	37	24	30
Victoria	9	24	19	11	30
Queensland	5	2	12	6	17
South Australia	11	14	17	4	12
Tasmania ....	....	2	9	12	11
Northern Territory	1	3	1	2	3
A.C.T. ....	....	....	2	2	5
New Zealand ....	....	....	2	....	1
Papua-New Guinea ....	....	....	....	....	4
Total	36	64	99	61	113

Over the last five years loans made outside the state have more than trebled which is surely a tribute to the intrinsic worth of the library’s holdings.

INTRASTATE EXTERNAL LOANS

The year’s figures again show a considerable number of loans made to other organisations within the state.

Table 2

Organisation	1968	1969	1970	1971	1972
Medical Library	86	65	93	140	162
Dept. of Agriculture	18	54	76	127	54
W.A.I.T.	24	36	72	113	112
Mental Health Services	34	n.a.	130	84	74
Fremantle Hospital	33	44	50	84	24
Hollywood R.G.H.	94	74	124	66	206
Government Chemical Laboratories	69	65	44	58	29
University of W.A.	19	30	34	58	53
Public Works Dept.	n.a.	n.a.	n.a.	51	28
C.S.I.R.O.	n.a.	n.a.	n.a.	39	14
K.E.M. Hospital	17	23	49	23	9
S.C.G. Hospital	50	23	49	18	21
Library Board	25	30	27	12	17
Forests Department	n.a.	n.a.	n.a.	n.a.	10
Main Roads Department	n.a.	n.a.	n.a.	n.a.	5
Nurses’ Library R.P.H.	n.a.	n.a.	n.a.	n.a.	17
Princess Margaret Hospital	n.a.	n.a.	n.a.	n.a.	4
Fremantle Prison Hospital	n.a.	n.a.	n.a.	n.a.	12
Geological Surveys	n.a.	n.a.	n.a.	n.a.	1
Others	99	101	112	108	144
Total	568	545	860	981	996

(n.a. denotes Not Available—detailed figures not kept).

From the considerable number of Government Departments and hospitals listed above, it is abundantly clear that the library serves widely across the community.

In contrast with the two tables above are those showing borrowing made by this library.

Table 3
INTERSTATE EXTERNAL BORROWINGS

Source	1968	1969	1970	1971	1972
New South Wales	17	17	11	9	34
Victoria	8	14	24	15	37
South Australia	1	14	41	29	78
Queensland	2	....	....	3	9
Tasmania ....	....	2	1	....	....
A.C.T.	4	4	8	13	47
Total	32	51	85	69	205

The figures from Tables 1 and 3 would seem to indicate a much greater use during the year made by libraries of each other's material. This is confirmed by the figures in Table 4. Probably the ready availability of copying machines is a major factor in this.

Table 4
INTRASTATE EXTERNAL BORROWINGS

Source	1968	1969	1970	1971	1972
Medical Library	155	99	214	140	336
University of W.A.	66	52	55	46	98
Government Chemical Laboratories	6	18	12	26	27
Library Board	56	28	32	22	67
Department of Agriculture	23	28	22	20	52
Mental Health Services	4	3	12	3	4
W.A.I.T.	4	1	3	4	11
C.S.I.R.O.	n.a.	n.a.	n.a.	n.a.	11
Fremantle Hospital	n.a.	n.a.	n.a.	n.a.	3
S.C.G. Hospital	n.a.	n.a.	n.a.	n.a.	11
Museum	n.a.	n.a.	n.a.	n.a.	3
Others	19	20	22	4	39
Total	333	249	372	265	662

NEW PUBLICATIONS

The somewhat reduced number of new publications received during 1972 reflects the budgetary pruning of 1971/72. Only 889 were received.

The main receiving sub-libraries within the library complex are shown.

Table 5

Sub-Library	1968	1969	1970	1971	1972
P.H.D. Library	677	463	497	515	550
State X-Ray Laboratories	52	30	90	84	51
P.H. Laboratories	77	40	51	51	42
Child Health Services	43	38	29	80	13
Government School of Nursing	24	16	24	26	12
Virology Laboratories	7	6	11	8	7
Dental Health Services	1	2	3	1	4
Chest Clinic	4	2	2	27	3
Medical Department	2	13	2	141	17
Hospitals (various)	25	144	110	160	156
Others	15	....	....	11	34
Total	927	754	819	1,104	889

The major receipts by hospitals, as one would expect were the Regional Hospitals.

Bunbury Regional Hospital	....	....	....	....	29
Kalgoorlie Regional Hospital	....	....	....	....	18
Northam Regional Hospital	....	....	....	....	14
Geraldton Regional Hospital	....	....	....	....	10
Busselton District Hospital	....	....	....	....	9
Warren District Hospital....	....	....	....	....	8
Roebourne District Hospital	....	....	....	....	7
Wyndham District Hospital	....	....	....	....	7
Port Hedland District Hospital	....	....	....	....	6
Derby District Hospital	....	....	....	....	6
Broome District Hospital	....	....	....	....	5
Albany Regional Hospital	....	....	....	....	5
Norseman District Hospital	....	....	....	....	4
Carnarvon District Hospital	....	....	....	....	4
Mt. Tom Price Hospital	....	....	....	....	3
Collie District Hospital	....	....	....	....	3
Ravensthorpe District Hospital	....	....	....	....	3
Sunset Hospital	....	....	....	....	2
Exmouth District Hospital	....	....	....	....	2

Eleven other hospitals received one publication each.

JOURNALS AND CIRCULATION

Subscriptions were taken out to an additional 27 journals so the total of current subscriptions is 703.

Although both the Lancet and British Medical Journal (both weeklies) are received by air and copies of the contents list distributed instead of actual circulation of the journals themselves the expected reduction in routine circulation has not occurred. The monthly figure has been around 1,100 items for several years but now is up to 1,314. Perhaps the steady increase in the total number of both journals received and persons serviced is responsible.

There was a slight easing in space difficulties during the year when a small room next door to the library proper became available for journal storage. However the relief is only temporary. The annual space requirement for journals such as "Nature", "American Journal of Pathology", "British Medical Journal" is close to 1 foot (30.5 cm) each so the annual shelf-space needed is very great. Currently close consideration is being given to the possible use of microfilm of some kind. General working space is totally inadequate now and where a micro-reader-printout could be placed is very difficult to see.

STAFF

During the year two library assistants left and the librarian. In each case there was a considerable time lapse before replacements were obtained. Consideration is being given to the appointment of staff to work outside the central library to service the State Health Laboratories and the State X-Ray Laboratory. A Librarian for the State Health Laboratories has been needed for two years now but the space at the laboratories has simply not been available. This position would require a qualified experienced librarian. The State X-Ray Laboratory is reaching the stage where it, too, needs full-time library staff. Possibly a library assistant would be adequate in the beginning.

GENERAL

There is, as always, steady expansion in the work done but the staff have high morale and work very well in cramped conditions. My thanks go to them and also to the many librarians and libraries across Australia with whom we have the most cordial relations.

Appendix XIV
Health Surveying Branch
J. F. Slattery, M.R.S.H., F.A.I.H.S.
Chief Health Surveyor

1. GENERAL

During the year under review, the Health Surveying branch continued to maintain a State wide Health supervisory service. The problems associated with all aspects of environmental Health has resulted in increased demand upon the time and expertise of the individual officer, and sufficient staff to effectively deal with all matters appears to be a continuing problem. Nevertheless, the year was one of satisfactory attainment.

2. ACCOMMODATION

Inadequate office accommodation is a general Departmental problem, with particular impact upon the Officers of the Branch, who for several years have been accommodated in four separate locations with the consequent difficulties in Staff Administration and control.

Although Departmental planning provides for new premises within the next two years, the immediate problem confronting the Branch was recognised, and in 1972 a decision was made to convert the Department owned Grosvenor House building to office accommodation, specifically for use by the Health Surveying Branch.

The building was occupied in September 1972.

Although lacking the facilities of the modern concept of office accommodation, the consequences of this action were dramatic.

For the first time in several years all Officers of the Branch are accommodated under the "one roof": Staff morale has improved, administration enhanced, and a vastly improved service to the Public introduced by creating clearly identifiable sections, within the Branch, with a Grade 1 Officer in charge of each section.

While cognizance is given to the fact that the use of Grosvenor House is temporary, pending the new building, the decision to "bridge" the intervening period with improved accommodation is acclaimed by the Officers of the Branch.

3. TRAINEES

The continuation of the Trainee scheme is still proving to be of particular value to the Branch and the Department.

Four Trainees are currently employed and all successfully passed their respective examinations during the current year.

The increasing interest by young men, both within and outside the Public Service, desiring to make a career of Environmental Health, and particularly to avail themselves of a "Trainee-ship" is shown by the number of applications and enquiries received during the year.

One vacancy advertised early in 1972, attracted seventeen applicants, with all the applicants being of particularly good standard.

The continued success of the scheme appears assured.

4. HEALTH SUPERVISION—NORTH WEST AREAS

For some ten years, health supervision of North West areas has been maintained by regular visits by a Departmental Officer from Head Office to the inland North West areas extending from Marble Bar to Paraburdoo and Shay Gap. In the Roebourne and Kimberley Health Regions, Health Supervision is provided by a Departmental Officer resident in the area.

The Roebourne Health Region comprises the districts of Roebourne, Onslow, Tom Price, Paraburdoo and Pannawonica.

The Kimberley Health Region comprises the districts of Derby, Broome, Kununurra, Wyndham and Halls Creek.

Each of the affected Local Health Authorities contribute to the cost of the Health Supervision Service.

Predictably the continued development of the North West coupled with the formation of the two new Local Authority Districts of East Pilbara and West Pilbara, resulted in a re-organisation of the Health Supervision services during the current year.

The re-organisation approved by the Commissioner of Public Health is to be effective from 1st July, 1973 and provides for :—

- (i) The full time employment of a Health Surveyor by the Shire of Roebourne.
- (ii) Health Supervision of the East and West Pilbara Shire Districts to be provided by a Departmental Officer from Head Office.

The East Pilbara Shire District includes the mining town of Goldsworthy, previously within the Port Hedland Shire District, and the West Pilbara includes Onslow, Tom Price, Paraburdoo, and Pannawonica previously included in the Roebourne Health Region.

These areas will now be provided with Departmental supervision in addition to the Inland North West areas currently being visited.

Examination of the Kimberley Health Region is continuing : the examination to date has revealed that development and population within the region has almost doubled since the inception of the scheme, and the one officer resident in the region is finding it increasingly difficult to provide adequate Health Supervision.

Re-organisation of the region into two, appears inevitable in the near future.

5. FOOD

This is an area of increasing application and complexity and is expected to further expand.

Activities during the year included investigations of proposals for marketing of food products and supervision of compliance with the Food and Drug Regulations in relation to standards, additives and labelling.

Special investigations were conducted of particular food, mercury in fish, mercury in other foods, fruit juices and market basket surveys ; and routine examinations were conducted of “ on sale ” food products to ensure required standards were being observed.

Investigations were conducted of State wide food spoilage, trace back procedures implemented and the necessary coordination of activity with Local Authorities and Industry arranged.

A total of 750 food samples were taken for examination during the year. The branch is again indebted to the professional advice and assistance given by the Food and Nutrition Officer, Mr. J. Edinger.

6. IMPORTED FOODS

The inspections and investigations of standards of all imported foods off loaded from sea transport at Fremantle wharf was continued : one officer is stationed at the wharf and is assisted by others as necessary. As predicted, the development of the Kewdale Marshalling yards resulted in an increasing volume of imported foods arriving by rail transport, and it became impracticable for the Officer stationed at the wharf to supervise both locations.

Additional staff was recruited and both sea and rail transport systems are now adequately supervised.

At both centres, routine physical inspections were conducted, samples taken for bacteriological and chemical analysis and routine organoleptic tests conducted. A total of 450 samples were taken.

Labelling requirements were checked and methods of storage and transport supervised.

Continual liaison is maintained with Customs Agents, Department of Customs and Shipping and Importers representatives.

The importance of this food supervisory service is obvious by the following list of food stuffs condemned during the year as being unfit for human consumption :—

Canned vegetables	....	....	....	....	205 dozen
Canned fish	....	....	....	....	100 dozen
Canned fruit	....	....	....	....	218 dozen
Nuts	....	....	....	....	806 Kilos
Desiccated Coconut	....	....	....	....	4,400 Kilos
Olives	....	....	....	....	1,260 Kilos
Tea	....	....	....	....	461 Kilos
Almond Meal	....	....	....	....	100 Kilos
Mustard	....	....	....	....	132 Kilos
Cocoa	....	....	....	....	400 Kilos
Vanilla Beans	....	....	....	....	60 Kilos
Soya Flour	....	....	....	....	600 Kilos
Oil	....	....	....	....	800 Kilos

7. LIQUOR

The supervision of standards for spiritous and fermented liquors, which became a responsibility of the Branch in 1970 attained maximum application during the year under review.

Liaison was maintained with other affected Authorities and with retail and wholesale wine and spirits organisations throughout the State. The sampling and supervisory programme evolved during the preceding year was actively pursued, and most situations throughout the State were visited at least once.

Details of inspections of licensed premises for compliance with liquor standards are as follows :—

Hotels	....	....	....	....	....	....	265
Licensed Restaurants	....	....	....	....	....	....	25
Cabarets	....	....	....	....	....	....	18
Clubs	....	....	....	....	....	....	16
Limited Hotels	....	....	....	....	....	....	12
Wine Houses	....	....	....	....	....	....	11
Function permits	....	....	....	....	....	....	8
Taverns	....	....	....	....	....	....	5
Packet Licenses	....	....	....	....	....	....	2
Railway Refreshments	....	....	....	....	....	....	1
Wine Houses (Australian)	....	....	....	....	....	....	2

8. MEAT INDUSTRY

The general surveillance of the meat industry throughout the State, including works, transport and personnel, was continued during the year.

General upgrading of meat works is continuing and the general trend towards larger type abattoirs is continuing. There are now 51 registered premises in the State, two large works, one at Katanning and one at Wooroloo, were completed during the year and five other proposed major works are at various stages of planning.

A number of the smaller country towns slaughterhouses enlarged their premises and have more than doubled their original output.

The sustained effort of several years has resulted in generally acceptable standards, and attention is now being given to providing a "code" of inspection practices and meat works hygiene practices.

Other matters relating to the meat industry which received attention are as follows :—

1. Continued liaison between the Department of Agriculture and Local Authorities concerning the eradication programmes for diseases in animals throughout the State. This included trace back of diseased animals from the place of slaughter to farm property of origin. Disease eradication programmes include tuberculosis, brucellosis, ovis and hydatids.
2. Investigation of suspected cases of *taenia saginata*.
3. The study of all "codex alimentaries" draft codes of practice concerning facets of the meat and fishing industries, submitted to this Department for comment, and submission to Canberra of Departmental recommendations relating to the drafts.

During the year the Officer in charge of this aspect of the Branch activity attended a meeting in Canberra when the various recommendations were discussed.

4. Plans of meat works and small goods premises were examined and recommended amendments or alterations submitted to affected Authorities.
5. Assistance was given to the newly formed "Lamb Marketing Board" concerning meat works, number of animals slaughtered and availability of persons to be trained as graders.

Necessary meetings were attended and liaison between the Board and the Department and Local Authorities established.

6. Various meetings were attended as necessary, and submissions made to other affected Authorities as required e.g. C.S.I.R.O. and N.H. and M.R.C.

9. FISHING INDUSTRY

General surveillance continued throughout the year and proposed legislation is now being considered. Two meetings of the Fish Legislation Committee were held.

A survey was conducted of the South Coast Fishing Industry conjointly with the Department of Fisheries, and plans to extend the survey to various islands off the west coast are well advanced.

Liaison was maintained with the Rock Lobster and Prawning Committee of the Australian Fishing Industry Council, and one meeting was held during the year.

A matter of concern with the Rock Lobster Industry is finding a method of adequate disposal of offal after processing. The previous practice of dumping the offal at sea was found to be unsatisfactory, and burying was introduced as a temporary measure, pending the completion of a feasibility study relating to the establishing of offal processing works at Jurien Bay and Geraldton.

As in previous years, all plans of new works and proposals to extend and vary existing works, were examined and liaison with the Industry and Local Authorities maintained.

10. MEAT INSPECTION

Meat Inspection services at the four major Metropolitan Abattoirs was maintained during the year.

The Officers engaged on Meat Inspection duties are also responsible for supervising of works sanitation, supervision of standards of vehicles engaged in meat transport, and for the supervision of the practical training of students studying for the Royal Society of Health qualifications in meat and other foods.

Although 32 Officers are now engaged in Meat Inspection duties under the supervision of a Senior Officer, the general expansion of the Meat Industry coupled with increasingly sophisticated methods of slaughtering, and the higher standards in Meat Inspection techniques demanded, has resulted in a fully committed staff with no allowances for contingencies. Further trained staff are required to maintain this essential service at the required standard.

During the year various proposals submitted to the Hon. Minister for Health suggesting that the State Meat Inspectors responsibilities be assumed by the Commonwealth Department of Primary Industry, resulted in an atmosphere of deep concern and anxiety in the Meat Inspectorate.

The Hon. Minister's decision not to allow any variations to the traditional system of Meat Inspection operating throughout the State, was widely acclaimed.

Figures relating to the annual slaughtering and inspection of food animals throughout the State, are shown as Appendix A.

11. ROYAL SHOW

As in previous years the general sanitation of the ground and control of food handling premises was supervised by Departmental Officers. A staff of seven officers assisted by three trainees were engaged on this work during the period of the Show.

All premises handling food were examined and permits issued when Health requirements had been complied with.

The extremely good liaison established between this Department and the Royal Agricultural Society is resulting in steadily improving conditions, and this year was reflected in the fact that not one complaint was received regarding food handling conditions.

12. CARAVAN PARKS

The policy of requiring new developments to be constructed to acceptable standards and efforts to upgrade existing facilities was continued throughout the year, requiring the full time engagement of one officer specialising in these matters.

In the Metropolitan area, two new parks came into use, one is currently under construction and improvements and extensions were conducted to five others.

In the North West areas, new parks have been constructed at Lake Argyle, Broome, Port Hedland, Shark Bay and Mardi, and throughout the South West, particular attention has been given to upgrading of existing facilities.

There are now approximately 200 registered caravan parks throughout the State and all were visited by a Departmental Officer during the year under review and advice and assistance given to Proprietors on methods of improvements.

To ensure that the standards required by the various regulations and bylaws governing caravan parks are both desirable and practicable, a review of all legislation was conducted and various amendments are under consideration.

Conjointly with this review, a departmental investigation was made of mobile housing and mobile house parks, and is continuing.

While new to this state, the concept of mobile housing is widespread and its introduction into this State appears imminent.

13. PUBLIC BUILDINGS

There was a marked increase in new projects, and extensions to existing buildings during the year. Changing social patterns particularly in the area of entertainment, create new situations which require constant supervision, and existing legislation must be constantly reviewed and amended where necessary to meet the current needs.

Consequently the Branch activity relating to part VI of the Health Act (public buildings) for the year under review was mainly directed towards examination of plans and specifications of new works and on site inspections during the constructional stages to ensure that the required standards of Health and Public Safety were adhered to.

Nevertheless, regular supervisory inspections were made of existing Public Buildings throughout the State and particular attention given to specific Public Buildings functions where public safety factors were involved, examples are :—the Royal Agricultural Show, Chinese Tennis, Oktoberfest, Wine Festivals and Open Air Concerts.

During the year, radio active exit and directional signs were investigated in conjunction with the Radiological Advisory Council. This type of sign does not require electrical wiring, they cannot be switched off, and are easily seen in blackout conditions. The signs have now been conditionally approved subject to license, and the first have been installed in the metropolitan area.

A survey of Public swimming pools to determine standards of hygiene and safety precautions observed was commenced, and by the year's end, 50 per cent. of all the pools in the State had been examined.

The survey included particular attention to the safety aspects relating to chlorine gas and use of gas masks, and included education and instruction on correct procedures, to swimming pool managers and others responsible for swimming pool control. Deficiencies in procedures and techniques were remedied when found.

An amendment to the relevant regulations introduced during the year made it mandatory for a person in charge of a swimming pool to be suitably qualified. Another amendment allowed the use of sodium hypochlorite in lieu of chlorine gas for pool water treatment, thus eliminating the danger from chlorine gas.

Overcrowding of a Public Building during a specific function is a constant problem. Although Public Health Officials and members of the Police Force are empowered to close the doors of a place of public entertainment when the permitted number of people has been reached, it is not always practicable to establish immediately, the "permitted number".

In an endeavour to overcome this problem, "maximum accommodation" notices were prepared and issued to affected premises via the particular Local Authority.

The notices are displayed in a prominent place, and allow an immediate assessment of overcrowding. The effect of the scheme will be evaluated in the forthcoming year.

In order to maintain the essential surveillance of new and existing Public Buildings, a close liaison has developed between officers of the section, Local Health Authorities and the officers of other involved Government Departments.

14. COMMUNITY WASTE DISPOSAL

The problems relating to the collection and disposal of Community wastes was given particular attention during the year under review, and the survey commenced by the Department during 1971 was continued. Aspects given attention are enumerated as follows :—

- (a) Appraisal made of future requirements for land fill sites which included—
 - (i) Assessment of life span of existing sites.
 - (ii) Assessment of life span of alternative sites already set aside by Local Authorities.
 - (iii) Assessment of life span of a number of possible future sites.

- (b) Analysis of alternative methods of refuse disposal which included—
 - (i) Incineration
 - (ii) Pulverisation
 - (iii) Transfer Station
 - (iv) Composting
 - (v) Recycling means

Also co-operating with industry in providing solution for actual and hypothetical waste disposal problems.

- (c) Research and production of base line figures for future studies of volume and composition of refuse produced in Metropolitan area (1·2 lbs. x 5 lbs. per person per day)
- (d) Determination of approximate combustibility ratio of domestic refuse and total refuse.
- (e) Establishment of base line figures for future studies of materials being salvaged and recycled which included—
 - (i) Waste foods (pig swill)
 - (ii) Waste organic material such as butcher shop wastes, poultry and crayfish processing wastes, which are converted into fertilizer products.
 - (iii) Glass products—re used and cullet which is re-converted into further glass products.
 - (iv) Paper and cardboard
 - (v) Rags and clothing
 - (vi) Car bodies
 - (vii) Street tree prunings converted to a composting material
- (f) Establishment of base line figures for future studies of animal carcasses arising from veterinary centres.
- (g) Investigations into the volume and nature of wastes arising from major hospitals and the establishment of a code of practices for the disposal of the various wastes.
- (h) Investigation of liquid waste salvage situation in the Metropolitan area which included establishment of volume of domestic, commercial and industrial effluents being removed and disposed of at liquid waste disposal and land fill sites.

15. PEST CONTROL

This section continued its work as in previous years, but with an increasing demand for insect pest control from Government Offices and instrumentalities, the existing staff is operating at maximum capacity. Activities for the year included the following :—

- (a) Testing of new formula anti-coagulant rat bait on caged rats to assess performance and efficiency.
- (b) Training of Pest Control operators at Government Hospitals and West Australian Government Railways.
- (c) Training of fly control officers for employment by Local Authorities during the Spring/Summer fly eradication programme.
- (d) Two hundred and forty inspections relating to fly control were made of Government Hospitals and institutions, eighty eight of Metropolitan Abattoirs, two hundred and forty of Metropolitan skin drying sheds, sixty four of Railway truck washing out yards, and sixty four of sewerage works.

Details of specific pest control treatments are shown hereunder :—

Details of Insect Pests, Rodent and Animal Eradication Treatments

<i>Item</i>	<i>No. of cases</i>
Rodent 	361
Possum 	Nil
Cat 	3
Cockroach 	362
Fly 	8
Termite 	75
Mosquito 	44
Ant 	16
Silverfish 	23
Honey Bee 	19
Flea 	18
Clothes Moth 	2
Pigeon mite 	6
Bed bug 	4
Spider Red Back 	26
Drug Store Beetle 	4
Weevil 	2
Adult Pigeon Control 	9
Sand Fly 	2
<hr/>	
Total number of inspections 	696
<hr/>	
Total number of pesticides and rat bait treatments	984
<hr/>	

16. SUB-DIVISION OF LAND (HOUSING)

Requests by the Town Planning Board for an opinion of the suitability of land for building purposes continued as in previous years, but with a greater emphasis on “ area surveys ” rather than requesting an opinion on individual lots.

This area of activity has broadened in its application as a consequence of increasing requests for opinions on land from other Departments and Instrumentalities, in addition to the Town Planning Board, and investigations include determining of ground water patterns, land treatment required and potential pollution of water courses in water catchment areas.

Details of this work for the year are as hereunder :—

Proposals for Metropolitan sub-divisions	....	....	216
Proposals for country sub-divisions	....	....	9
Area surveys	....	....	36
Ministerial Appeals	....	....	49
Appeal Investigations (Local Government)	....	....	56
State Housing Commission	....	....	5
Public Building Sites (Hospitals, Schools)	....	....	40
General Engineers (Public and Local Authority)	....	....	73
Total			<hr/> 484 <hr/>

17. METROPOLITAN FLY CAMPAIGN

The yearly fly control campaign in conjunction with Metropolitan Local Authorities was again conducted on similar lines to previous years. Relevant details are shown as Appendix B.

18. MOSQUITO CONTROL

Mosquito control and eradication procedures is a constant activity of the Branch.

Activities included the examination of individual complaints by affected members of the public and advice on corrective procedures, including liaison with affected Local Authorities.

The survey commenced the previous year to establish the presence or otherwise of *Aedes Aegypti* in specific North West and South West areas was continued, and results are being correlated.

The rehabilitation of certain established mosquito breeding areas by the sanitary land fill method is currently being examined.

19. SEPTIC TANKS

A total of 9,715 plans were examined and approved during the year, almost 1,000 in excess of the number examined during the previous year. The proposed installations varied from the standard domestic type to package treatment installations for servicing of whole communities.

The testing of chemical additives to septic systems and disposal systems was continued. Twenty five varieties were submitted to the Branch during the year and twenty were approved as suitable.

Quality control testing of components was continued and a final draft of proposed amendments to the relevant regulations was completed.

20. FOOD AND WATER SAMPLES

Rivers, oceans and National Parks (Bacteriological) ....	....	1,488
Oceans and Lakes (salmonella) ....	....	144
Water (chemical) ....	....	38
Routine Food Samples ....	....	901
Fremantle Wharf (Imported Foods) ....	....	750
Liquor ....	....	97
Miscellaneous ....	....	316

21. DETAILS OF ROUTINE AND SPECIAL INVESTIGATIONS CONDUCTED THROUGHOUT THE YEAR

1. Regular Inspections of Perth Airport on behalf of the Department of Civil Aviation.
2. Investigations of Statutory Appeals and complaints made to the Commissioner of Public Health.
3. Survey of sanitary requirements of high rise buildings under construction with the view to establishing statutory standards.
4. Survey of shopping complexes with view to setting standards for toilet and hand washing facilities.
5. Investigation of food premises proposed as suppliers to Government Hospitals by Public Health.
6. Regular Inspections of Rottnest Island and all food handling premises under the control of the State Gardens Board, on behalf of the Lands Department.
7. Supervisory visits to Country Local Authorities and hospital premises. 175 Country Towns were visited during the year.
8. Investigation of flammability of various retail lines of mattresses and bed coverings to determine extent of Public Health hazard.
9. Special investigations on behalf of Swan River Conservation Board to determine extent of discharge of liquid wastes from water craft into ocean and river waters, and determining of standards of sanitation for house boats.
10. Testing and evaluation of new effluent disposal systems.
11. Regular attendance at the various meetings of the four Health Liaison Groups to enhance communication between the Department and Local Authority Officers on policy matters.
12. Completion of investigations relating to promulgation of Food hygiene regulations, and Hair Dressing establishments regulations, and continuing of investigations relating to proposed new poultry processing regulations.
13. Metrication of Health Act and associated Regulations and Bylaws.

APPRECIATION

My appreciation is expressed to an energetic and loyal staff for their application throughout the year.

Appendix A

MEAT INSPECTION FOR YEAR ENDED 31st DECEMBER, 1972

Area	Type and Number of Animals Slaughtered	Carcases Condemned						Part Carcases Condemned					Organs Condemned								
		Tuberculosis	Actinomycosis	Emaciation	Caseous Lymphadinitis	Para-Typhoid	Traumatic and Septic	Other	TOTAL	Tuberculosis	Actinomycosis	Caseous Lymphadinitis	Arthritis	Other	TOTAL	Tuberculosis	Actinomycosis	C. Ovis	Hydatids	Other	TOTAL
Midland	Cattle	96	...	...	...	...	141	29	266	49	339	...	65	185	638	47	391	...	182	9,162	9,782
	Calves	...	...	...	...	...	13,787	16,865	56,026	...	...	...	...	...	...	...	...	...	...	283,231	283,231
	Sheep	1	...	...	25,374	8	124	249	382	3	...	...	64	876	64	...	...	...	...	16,944	16,944
	Pigs	...	...	...	...	...	...	...	...	...	...	...	445	...	1,324	...	...	...	...	...	...
Robbs Jetty	Cattle	7	1	...	...	...	34	16	58	2	640	...	97	153	892	6	550	...	239	2,128	2,923
	Calves	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Sheep	...	...	...	7,611	7	829	12,093	20,533	...	...	...	7,328	6	15,645	...	...	...	496	37,942	38,438
	Pigs	...	...	...	...	...	58	159	224	2	...	...	318	271	591	...	...	...	...	12,323	12,323
Watsons	Cattle	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Calves	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Sheep	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Pigs	4	...	...	...	38	334	8,180	8,556	...	...	...	8,964	8,826	17,790	...	...	...	...	86,145	86,145
Metro. Total	Cattle	103	1	...	...	...	175	45	324	51	979	...	162	338	1,530	53	941	...	421	11,290	12,705
	Calves	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Sheep	...	...	...	32,985	...	14,616	28,958	76,559	...	...	...	7,392	6	15,709	...	...	...	496	321,173	321,669
	Pigs	5	...	...	...	53	516	8,588	9,162	5	...	...	9,727	9,973	19,705	...	...	...	...	115,412	115,412
Country Total*	Cattle	16	3	...	...	...	50	42	119	3	117	...	38	165	323	...	127	...	89	1,315	1,531
	Calves	...	...	...	...	...	2	3	7	...	...	...	48	3	51	...	...	...	...	16	16
	Sheep	...	...	...	1,540	...	2,004	1,611	8,165	1	...	...	763	238	1,324	...	...	3,784	3,691	99,390	106,865
	Pigs	...	...	...	...	32	91	102	228	9	...	...	216	328	555	15	...	...	1	7,213	7,229
State Total	Cattle	119	4	...	...	...	225	81	443	54	1,096	...	200	503	1,853	53	1,068	...	510	12,605	14,236
	Calves	...	...	...	...	...	2	3	7	...	...	...	48	3	51	...	...	...	...	16	16
	Sheep	...	...	...	34,525	...	16,620	30,569	84,724	1	...	...	8,155	244	17,033	...	...	3,784	4,187	420,563	428,534
	Pigs	5	...	...	...	85	607	8,690	9,390	14	...	2	9,943	10,301	20,260	15	...	...	1	122,625	122,641

* Country Figures
(1) Albany—Condemnation figures not available.
(2) Augusta/Margaret River—April to October only.
(3) Dardanup/Capel—Condemnations estimated for part of year.

Appendix B

METROPOLITAN FLY CAMPAIGN 1972-73

Persons Trained at Two Schools

Mature Aged Persons	....	....	....	17
Students	....	....	....	6
				<hr/>
				23
				<hr/>

Metropolitan

16 Local Authorities employed a Total of 33 Mature Age Persons and 7 Students as “ Fly Control Officers ”.

1971/72 16 Local Authorities employed a Total of 31 Mature Age Persons and 5 Students as “ Fly Control Officers ”.

Country

No participation.

Previously Trained Persons Who Re-applied and were Employed

Mature Age Persons	....	....	....	18
Students	....	....	....	1

Local Authorities Participating

Wanneroo Shire—participated for the first time this year.

Swan Shire—Did not participate this year.

9 Local Authorities participated in the Autumn Campaign.

STATISTICAL SUMMARY OF ANNUAL FLY CAMPAIGN 1972/73

Year	Number of Local Authorities		No. of Vacancies	No. of persons trained	No. of Courses	No. available	No. employed	Previously Trained persons applied	Previously Trained persons employed	Total No. of weeks	No. of Premises visited	No. of Premises inspected	No. of Premises breeding flies	Percentage of Premises inspected breeding flies	No. of Breeding places found
	Metropolitan	Country													
1969/70 ..	14	1	41	37	4	37	36	18	18	327	52,688	40,643	3,303	8.1	3,481
1970/71 ...	16	1	35	33	3	33	33	5	5	343	61,080	51,121	4,050	7.9	4,539
1971/72 ..	16	—	35	31	4	25	25	13	13	440	75,895	66,487	4,477	6.7	4,737
1972/73 ...	16	—	42	23	2	23	23	19	19	564	86,051	75,133	3,728	5.0	4,066

METROPOLITAN FLY CAMPAIGN 1971-72 (BOTH PHASES) SUMMARY OF RESULTS (FULL REPORT)

Local Authority	No. of Persons Employed.	Time of Employment (in weeks).	Number of Premises Visited.	Number of Premises Inspected.	Number of Premises where Breeding Detected.	Number of Breeding Places Found.	Rubbish Bins.	Buried Food Wastes.	Poultry Keeping.	Incinerators.	Muleh.	Compost Heaps.	Blood and Bone.	Animal Manure.	Fowl Manure.	Lawn Clippings.	Other.
City of Perth	11	193	15,180	14,077	1,234	1,402	554	140	20	30	13	95	4	83	213	250	...
City of Stirling	5	42	6,678	5,052	338	349	215	13	11	4	8	31	1	8	8	50	...
City of South Perth	3	44	5,141	4,124	78	79	20	5	2	1	...	2	...	2	1	46	...
City of Fremantle	2	28	5,697	4,863	380	398	206	7	25	4	6	16	12	18	3	101	...
City of Melville	3	51	14,701	14,575	282	292	40	17	7	1	18	49	...	1	3	156	...
City of Subiaco	1	18	4,685	4,045	43	43	25	3	1	...	...	3	2	2	3	4	...
City of Nedlands	2	33	6,119	6,119	221	222	14	6	2	2	3	25	2	5	7	145	13
Town of Canning	2	34	3,273	2,287	83	85	13	7	21	...	1	1	1	11	1	29	...
Town of Cockburn	1	6	1,100	1,060	108	108	60	1	2	1	6	6	...	8	15	5	4
Town of Claremont	1	8	1,719	1,316	95	95	36	...	3	2	...	4	...	...	2	48	...
Town of Mosmans	1	9	1,434	1,434	32	32	7	1	...	...	...	4	...	...	...	20	...
Shire of Bassendean	1	11	2,709	2,704	108	214	73	1	...	2	6	2	...	...	...	130	...
Shire of Belmont	2	34	6,433	4,404	208	203	61	15	19	6	...	5	1	5	4	92	...
Shire of Kalamunda	2	14	3,252	3,161	269	280	214	...	7	...	...	12	...	16	22	9	...
Shire of Rockingham	2	20	4,350	4,070	213	223	148	5	...	3	...	10	...	4	4	49	...
Shire of Wanneroo	3	19	3,580	1,842	36	36	26	...	1	...	...	3	...	2	...	3	1
	42	564	86,051	75,133	3,728	4,066	1,712	221	121	56	61	268	21	165	286	1,137	18

METROPOLITAN FLY CONTROL PLANNING COMMITTEE, JUNE 1973

REPORT ON FLY CONTROL OFFICERS EMPLOYED AND PREMISES
INSPECTED (METROPOLITAN AREA) DURING BOTH
PHASES OF 1972/73 CAMPAIGN

Local Authorities Participating	....	....	....	....	16
Students Employed	....	....	....	....	7
Mature Age Persons	....	....	....	....	33
Premises Visited	....	....	....	....	86,051
Premises Inspected	....	....	....	....	75,133
Premises Breeding Flies	....	....	....	....	3,728
Percentage of Premises not inspected	....	....	....	....	12.7%

Breeding Sites					%	
Rubbish Bins	....	....	....	....	1,712	42.1
Buried Food Wastes	....	....	....	....	221	5.4
Poultry Keeping	....	....	....	....	121	3.0
Incinerators	....	....	....	....	56	1.4
Mulch	....	....	....	....	61	1.5
Compost Heaps	....	....	....	....	268	6.6
Blood and Bone	....	....	....	....	21	0.5
Animal Manure	....	....	....	....	165	4.1
Poultry Manure	....	....	....	....	286	7.0
Lawn Clippings	....	....	....	....	1,137	28.0
Other	....	....	....	....	18	0.4

Comparative Figures of Breeding since 1961/62

			%					%	
1961/62	....	....	22.3		1967/68	....	....	6.7	
1962/63	....	....	23.5		1968/69	....	....	9.0	
1963/64	....	....	10.0		1969/70	....	....	8.1	
1964/65	....	....	10.0		1970/71	....	....	7.9	
1965/66	....	....	9.4		1971/72	....	....	6.7	
1966/67	....	....	7.9		1972/73	....	....	5.0	

FLY CAMPAIGN 1972/73—COMPARISON WITH 1971/72—BOTH PHASES

					No. of Premises Inspected		No. of Premises Breeding Flies		Percentage of Premises Breeding Flies	
					1971/72	1972/73	1971/72	1972/73	1971/72	1972/73
City of Perth	....	....	....	....	9,031	14,077	909	1,234	10.1	8.8
City of Sterling	....	....	....	....	2,481	5,052	120	338	4.8	6.7
City of South Perth	....	....	....	....	5,463	4,124	154	78	2.8	1.9
City of Fremantle	....	....	....	....	5,115	4,863	211	380	4.1	7.8
City of Melville	....	....	....	....	13,686	14,575	677	282	5.0	1.9
City of Subiaco	....	....	....	....	3,948	4,045	57	43	1.4	1.1
City of Nedlands	....	....	....	....	5,215	6,119	471	221	9.0	3.6
Town of Canning	....	....	....	....	2,717	2,287	84	83	3.1	3.6
Town of Cockburn	....	....	....	....	1,219	1,060	88	108	7.2	10.2
Town of Claremont	....	....	....	....	1,316	1,316	108	95	8.2	7.2
Town of Mosmans	....	....	....	....	1,130	1,434	17	32	1.5	2.2
Shire of Bassendean	....	....	....	....	2,317	2,704	151	108	6.5	4.0
Shire of Belmont	....	....	....	....	4,167	4,404	488	208	11.7	4.7
Shire of Kalumunda	....	....	....	....	1,917	3,161	385	269	20.1	8.5
Shire of Rockingham	....	....	....	....	3,605	4,070	156	213	4.3	5.2
Shire of Wanneroo	....	....	....	....	....	1,842	....	36	....	2.0

Appendix XV

Food & Nutrition Branch

J. R. Edinger B.Sc. A.R.A.C.I. Food & Nutrition Officer

1. General

The Food and Nutrition Branch is a new section of Public Health created in late 1971 with the appointment of a Food and Nutrition Officer, who acts as Secretary of the W.A. Food and Drugs Advisory Committee and represents the State on the Commonwealth National Health and Medical Research Council Food Standards Committee. Both these Committees work towards creating uniform Food Regulations on an Australian wide basis by amending existing regulations and by creating new ones which are so necessary in the rapidly expanding food sphere.

The Food and Nutrition Officer with the co-operation of the Food Section of the Inspection Branch arranges food and liquor sampling programmes and advises action to be adopted on the interpretation of the results of the various analyses.

Overall, the Food and Nutrition Branch maintains good contact with local industry, both on a personal basis and through the Food Technology Association of W.A. and with local health authorities, serving in an advisory capacity to both with the aim of establishing and maintaining a high standard of quality of the food sold to the public.

2. Sampling Programmes

All the samples submitted for investigation were examined by three laboratories, namely, the Government Chemical Laboratories and the Public Health Microbiological and Biochemical Laboratories. A summary of the types of samples submitted together with the number of each is shown in tables A, B. and C.

2.1 Cockburn Sound Survey—Mercury content of fish.

A survey of fish for mercury content was conducted for the following reasons:—

- (a) To establish if there was gross pollution in Cockburn Sound.
- (b) To establish a level of mercury for the various types of fish, crustaceans and molluscs at certain sizes and weights wherever possible, to serve as a basis for comparison for samplings in the future.

Wherever possible arsenic determinations were conducted on the samples as a routine procedure.

Some sixty fish were examined and were all under the prescribed limit for mercury of 0.5 parts per million. As predicted, the size (weight) and age of the fish appear to bear a direct relationship to the total amount of mercury determined by analysis. Arsenic levels generally were low averaging 0.5 parts per million and in some cases being of negligible content (less than 0.2 p.p.m.).

2.2 Fish—Canned, Frozen (Imported) Crustaceans, Molluscs.

A general sampling of fish for mercury content was carried out prior to July 1972.

(a) *Canned Tuna*

Nine brands, seven imported and two Australian were sampled. (28 samples in all). Two imported brands exceeded the accepted level of 0.5 p.p.m. and were not released for sale. Samples ranged from 0.2 to 2.0 p.p.m. of mercury.

(b) *Canned Fancy Fish Foods* (oysters, clams, mussels etc.)

Eight samples of imported items were all well within the accepted 0.5 p.p.m. (0.02 to 0.2 p.p.m. of mercury).

(c) *Imported Fish—Frozen* (Fillets and packaged)

Twenty seven samples of imported raw fish were all found to be under 0.5 p.p.m. of mercury.

(d) *Crustaceans*

(i) *W.A. Crayfish*. Sixty samples were all under the prescribed limit of 0.5 p.p.m. (0.02–0.15 p.p.m.).

(ii) *Crayfish—Imported*. Nine samples were examined and ranged from 0.03 to 0.23 p.p.m.

(iii) *Crabs* (Swan River Blue Manna). Four samples were within the range 0.06 to 0.17 p.p.m. of mercury.

(iv) *Prawns* (Fresh—local). Four samples ranging from 0.01 to 0.12 p.p.m. of mercury.

Further sampling was conducted during the remainder of the year.

2.3 Fruit Juices

Forty nine samples were examined.

A special method of analysis for orange juice was developed and the actual juice content of retail packs could be adequately assessed. Appropriate action was taken to correct deficient products.

2.4 Liquor Inspection

Officers were trained to determine the alcoholic strengths of various liquors in the field, during their many inspections throughout the State. Some 66 confirmatory analyses were carried out by the Government Chemical Laboratories and advice and instruction as to how to remedy deficiencies in spirit content was given wherever necessary.

2.5 Crayfish Survey—Westralian Coast for Mercury content.

A sampling survey of crayfish was carried out with the co-operation and valuable assistance of the Fisheries Department

All 121 samples examined were below the maximum allowable limit of 0.5 p.p.m. of mercury.

2.6 Monitoring of Imported Foods from Fremantle Wharf

This is a continuing process and amounts to many hundreds of samples of frozen fish, canned fish and other canned foods, fresh and cooked prawns and other items of food. Routine checks for mercury and arsenic are carried out and where applicable microbiological tests are done to ensure that the product is fit for sale.

2.7 Polychlorinated Biphenyls (P.C.B.'s)

Due to world prominence of P.C.B.'s being implicated as a food contaminant a small sampling programme was initiated.

(a) *Cockburn Sound Fish*

Eighteen fish were tested for P.C.B.'s but all were under the limit of detection of 0.05 p.p.m.

(b) *Various Items of Food*

Eggs, butter, cheese, meat etc. were tested for P.C.B.'s with negative results.

(c) *Cartons for Meat*

Some P.C.B. (as Aroclor 1254) was detected—3·67 p.p.m.

(d) *Photocopying Papers*

P.C.B.'s from 0·02 to 0·06 p.p.m. were detected in some samples. Others contained none.

(e) *Cardboard Samples*

Various amounts of P.C.B.'s were detected in cardboards produced from the recycling of papers.

The collectors of waste paper advised clients not to include “ carbonless ” or photocopying paper in their waste paper contributions.

2.8 Sampling of Foods for “ Heavy Metals ”—Cadmium, Lead and Zinc

Various samples have been analysed, but only on a small scale for cadmium, lead and zinc. This work will be continued on an enlarged scale when the laboratory loading for mercury estimations is reduced

2.9 Tomato Sauces

Nine samples were examined with satisfactory results.

2.10 Margarine

Fourteen samples were examined and all were in accordance with their particular labelling category, including the group of ‘ polyunsaturated ’ margarines analysed.

2.11 Sperm Whale

Forty eight samples associated with the sperm whale and by-products were examined for mercury content, because of the chance of mercury being carried along in the food chain by whale meal etc.

2.12 Chicken Sampling

Twelve chickens fed on a known ration, which was separately analysed for mercury content, were examined for mercury. Also chicken giblets and pieces such as legs, wings etc. were analysed. Chicken meat averaged 0·01 p.p.m. of mercury which is well under the allowable limit of 0·03 p.p.m.

2.13 Shark Sampling

Results are inconclusive where mercury determinations are concerned because of the many difficulties encountered by the straight purchasing of the incomplete sharks. Identification, weight, size and sex is almost impossible because of the removal of the head, tail, viscera etc. and a detailed survey will be conducted with the assistance of the Fisheries Department in the forthcoming year.

3. Food Regulations

Four amended regulations, all of topical interest and of importance to the Department were gazetted on 1st December, 1972 (*G.G.* No. 110), namely—Poisonous Metals in Food (A.08), Soft Drinks, (P.14), Wine (Q.01) and Spirits and Liqueurs (Q.05).

In conclusion, I wish to thank the Chief Health Surveyor, Mr. J. Slattery, for his co-operation and to making Inspection Staff available, particularly the Food Inspection Section, so ably led by the Officer in Charge, Mr. G. Kaiser.

Table A
GOVERNMENT CHEMICAL LABORATORIES

Food—										No. of Samples
Aerated waters	....	....	....	....	....	....	....	....	....	4
Apples	....	....	....	....	....	....	....	....	....	1
Beverages	....	....	....	....	....	....	....	....	....	2
Bread	....	....	....	....	....	....	....	....	....	3
Brussel Sprouts	....	....	....	....	....	....	....	....	....	1
Cabbage	....	....	....	....	....	....	....	....	....	1
Carrots	....	....	....	....	....	....	....	....	....	1
Celery	....	....	....	....	....	....	....	....	....	4
Confectionery	....	....	....	....	....	....	....	....	....	5
Cornflour	....	....	....	....	....	....	....	....	....	1
Crayfish	....	....	....	....	....	....	....	....	....	103
Crayfish paste	....	....	....	....	....	....	....	....	....	1
Doughnut	....	....	....	....	....	....	....	....	....	1
Dried Milk	....	....	....	....	....	....	....	....	....	1
Eggs	....	....	....	....	....	....	....	....	....	16
Fish	....	....	....	....	....	....	....	....	....	201
Food (miscellaneous sampling)	....	....	....	....	....	....	....	....	....	2
Fruit Juice	....	....	....	....	....	....	....	....	....	49
Jam	....	....	....	....	....	....	....	....	....	1
Liquor	....	....	....	....	....	....	....	....	....	66
Lobster (Overseas)	....	....	....	....	....	....	....	....	....	12
Margarine	....	....	....	....	....	....	....	....	....	14
Meat	....	....	....	....	....	....	....	....	....	34
Meat preservative	....	....	....	....	....	....	....	....	....	1
Milk	....	....	....	....	....	....	....	....	....	76
Mushrooms (canned)	....	....	....	....	....	....	....	....	....	2
Mussels	....	....	....	....	....	....	....	....	....	8
Potatoes	....	....	....	....	....	....	....	....	....	3
Prawns	....	....	....	....	....	....	....	....	....	101
Rice	....	....	....	....	....	....	....	....	....	1
Rock Lobster	....	....	....	....	....	....	....	....	....	12
Safflower Oil	....	....	....	....	....	....	....	....	....	1
Soup (Canned)	....	....	....	....	....	....	....	....	....	6
Soup Mix	....	....	....	....	....	....	....	....	....	4
Spirit	....	....	....	....	....	....	....	....	....	3
Tea	....	....	....	....	....	....	....	....	....	2
Tomato Juice	....	....	....	....	....	....	....	....	....	1
Tomato Sauce	....	....	....	....	....	....	....	....	....	9
Tomato Soup	....	....	....	....	....	....	....	....	....	4
Yoghurt	....	....	....	....	....	....	....	....	....	1
Total	....	....	....	....	....	....	....	....	....	759

Miscellaneous Samples Connected with Food Investigations—

Type of Sample	No. of Samples
Bentonite (Filtering aid for Wine)	3
Food Bag	1
Glue (for Packaging)	1
Leaves	1
Paraffin Oil (oiling of eggs)	11
Pesticides	2
Plant Material	1
Poultry Feeds	4
Sewage (for Hg and Cd)	2
Soap	3
Soil	
Teething Ring	1
Vending Machine (for poisonous metals)	1
Water/	27
Whale (meat samples etc.)	22
Total	81

Table B
PUBLIC HEALTH LABORATORIES (Biochemistry Department)

Food—											No. of Samples
Butter	....	....	....	....	....	....	....	....	....	....	1
Cheese	....	....	....	....	....	....	....	....	....	....	1
Eggs	....	....	....	....	....	....	....	....	....	....	6
Egg Pulp	....	....	....	....	....	....	....	....	....	....	3
Fish (local)	....	....	....	....	....	....	....	....	....	....	22
Fish (canned and frozen—imported)	....	....	....	....	....	....	....	....	....	....	41
Grapefruit	....	....	....	....	....	....	....	....	....	....	6
Milk	....	....	....	....	....	....	....	....	....	....	1
Oysters (frozen)	....	....	....	....	....	....	....	....	....	....	3
Oysters (canned)	....	....	....	....	....	....	....	....	....	....	2
Prawns (cooked or fresh)	....	....	....	....	....	....	....	....	....	....	7
Prawns (canned—imported)	....	....	....	....	....	....	....	....	....	....	1
Shark	....	....	....	....	....	....	....	....	....	....	3
Whale (meat, blubber, liver etc.)	....	....	....	....	....	....	....	....	....	....	9
Whale (meals and solubles)	....	....	....	....	....	....	....	....	....	....	17
Total	....	....	....	....	....	....	....	....	....	....	123

P.C.B's. Sampling—

<i>Type of Sample</i>											No. of Samples
Butter	....	....	....	....	....	....	....	....	....	....	1
Cheese	....	....	....	....	....	....	....	....	....	....	1
Corrugated Cardboard (for cartons)	....	....	....	....	....	....	....	....	....	....	34
Eggs	....	....	....	....	....	....	....	....	....	....	1
Fish (Cockburn Sound)	....	....	....	....	....	....	....	....	....	....	18
Glues and Sprays (for making cartons)	....	....	....	....	....	....	....	....	....	....	3
Meat Carton	....	....	....	....	....	....	....	....	....	....	1
Photocopying Paper	....	....	....	....	....	....	....	....	....	....	3
Photocopying Room Air	....	....	....	....	....	....	....	....	....	....	1
Total	....	....	....	....	....	....	....	....	....	....	63

Table C
PUBLIC HEALTH MICROBIOLOGICAL LABORATORY

Food—											No. of Samples
Cheese	....	....	....	....	....	....	....	....	....	....	1
Chicken	....	....	....	....	....	....	....	....	....	....	3
Cream	....	....	....	....	....	....	....	....	....	....	6
Fish	....	....	....	....	....	....	....	....	....	....	2
Frozen Dinner	....	....	....	....	....	....	....	....	....	....	1
Fruit Juices	....	....	....	....	....	....	....	....	....	....	2
Meat	....	....	....	....	....	....	....	....	....	....	77
Meat—Manufactured meat products	....	....	....	....	....	....	....	....	....	....	88
Milk—Cows	....	....	....	....	....	....	....	....	....	....	13
Milk Products	....	....	....	....	....	....	....	....	....	....	3
Milk—Non fat	....	....	....	....	....	....	....	....	....	....	5
Milk—Goats	....	....	....	....	....	....	....	....	....	....	1
Mushrooms (canned)	....	....	....	....	....	....	....	....	....	....	8
Pet Foods	....	....	....	....	....	....	....	....	....	....	1
Rabbit	....	....	....	....	....	....	....	....	....	....	1
Sea Foods	....	....	....	....	....	....	....	....	....	....	28
Soft Drinks	....	....	....	....	....	....	....	....	....	....	1
Soup (canned—Bon Vivant)	....	....	....	....	....	....	....	....	....	....	14
Yoghurt	....	....	....	....	....	....	....	....	....	....	2
Miscellaneous Foods	....	....	....	....	....	....	....	....	....	....	14
Total	....	....	....	....	....	....	....	....	....	....	271

Appendix XVI

Statistics Branch

Marlene M. Lugg, Sc.D., M.P.H., F.H.A., F.A.P.H.A.
Health Statistician-in-Charge

During 1972, the Statistics Branch was further consolidated when the A.D.P. Section, formerly located at Sir Charles Gairdner Hospital, and the main clerical section moved together into new leased premises at 524 Hay Street, directly next door to the Medical Department. This new location has proved very advantageous to staff who must have close contact with the Bureau of Census and Registrar General's departments, also located nearby.

HOSPITAL MORBIDITY STATISTICS

This year was the second of the total hospital morbidity statistics system, including private as well as public hospitals. Co-operation from hospitals and doctors remains excellent ; and requests for information from the system are increasing rapidly.

The hospital morbidity system is the basic tool for the major project undertaken this year ; namely, a hospital planning study which will be presented to the State Health Council when complete in 1973.

The obstetric data collection form, mentioned in the previous Annual Report has been revised and presented to the State Health Council's Maternal and Child Health Committee. It should be ready for introduction into all State hospitals during 1973. Western Australia will then be the only State with a State-wide obstetric data collection in addition to the routine hospital statistics. As has been shown overseas, this data should prove extremely valuable in planning for maternal and child health services in addition to aiding the Infant Health Sister's routine work.

Total hospital discharges increased 8 per cent. in 1972 (from 211,349 to 229,593). Operations increased 11 per cent., hospitalization for accidental injury increased 8 per cent., and the remaining non-surgical, non-accident discharges increased only 6 per cent.

The hospitalization rate per 1,000 population increased as follows :

Location	Rate per 1,000 population	
	1971	1972
Perth 	169	180
Rural 	278	300
Western Australia 	204	217

There has been no major change in hospitalization patterns by disease, sex or age groups since 1971. The teaching hospitals have the longest average stay (10·1 days) the private hospitals the shortest (7·0 days) and the other government and board hospitals in between with 7·9 days. (The State average was 8·3 days compared with 8·7 days in 1971). This overall slight decrease in length of stay is reflected in most conditions treated, except for the following, in which length of stay increased : endocrine, nutritional and metabolic ; blood and blood forming organs ; mental disorders ; digestive system ; skin and subcutaneous tissue ; and symptoms and ill-defined conditions.

The distribution of patients by type of hospital remained similar ; (1971 figures in brackets) Teaching 35·3 per cent. (36·1 per cent) ; Private 19·8 per cent. (19·4 per cent.) and Government and Board 44·9 per cent. (44·5 per cent.).

There was an increase in percentage of metropolitan hospital discharges—from 60 to 63 in 1972.

Operation cases also showed a decreased average length of stay, 7·7 days compared with 8·1 days in 1971. This was largely accounted for by a decrease of 2·2 days average stay for operations on the thorax, and slight decreases for operations on the eyes and miscellaneous surgical procedures.

As with total discharges there was an increase in the percentage of Metropolitan hospital discharges (from 81·0 per cent. in 1971 to 83·6 per cent in 1972).

Accidents, Poisoning and Violence showed a decrease in average length of stay from 9·0 to 8·4 days. There was also a decrease in deaths per 1,000 separations ; from 9 in 1971 to 8 in 1972.

DATA PREPARATION UNIT

The re-location and renaming of the Data Preparation Unit (formerly A.D.P. Unit) to the main office has streamlined work flow considerably, even though laboratory request forms must now be delivered by Courier several times a day. The Unit now produces charges and billing lists for all Public Health Laboratory tests carried out on Sir Charles Gairdner Hospital patients. It is hoped that after commissioning of the dedicated computer for haematology and biochemistry, the Data Preparation work for those two sections will decrease as *Ad Hoc* work within the Health Department is placing increasing demands on this Unit.

The Unit continues to routinely process perinatal death notifications, notifiable diseases and the Cancer Register. During the year, two new I.B.M. 129 Punch/Verifiers were added. The dual use, speed and ease of operation of these machines has increased output of the Unit considerably. Three special data processors have been employed during this year, financed by the University of W.A. on a N.H. & M.R.C. grant to assist in the medical record linkage work.

CANCER REGISTER

The increased load of work resulting from inclusion of all public and private hospitals cancer patients into the Register proved to be almost too great for existing staff during the year. Fortunately additional clerical assistance became available late in the year. Hopefully the Cancer Register will be completely revised and operational on a State-wide basis by the end of 1973.

AD HOC PROJECTS AND SURVEYS

Medical Record Linkage

This project, in co-operation with Professor M. S. T. Hobbs of the University of W.A. Medical School, is progressing under a N.H. & M.R.C. grant. The perinatal mortality study is one aspect of this project on which computer programming has been completed.

Social and Preventive Medicine Projects

Medical Students were again employed during the summer holidays for special public health residencies. The projects on which they assisted were :—

- (1) Accidental Injury Admissions to P.M.H. 1971
- (2) Infant Mortality in W.A.
- (3) Demography of Human Parasitology

Medical Manpower Planning

A study of medical manpower needs for Western Australia to 1990 was carried out for a special committee set up by the Faculty of Medicine of the University of W.A. The results of this survey were presented to the Committee on Medical Schools to the Australian Universities Commission (Karmel Committee).

OTHER ITEMS OF INTEREST

Numerous requests for information were received from Government, University and Private sources. The Officer-in-Charge continues to serve on the State Health Council's Medical Computer Co-ordinating Committee and the N.H. & M.R.C.'s Hospital Statistics Sub-Committee. She also continued to tutor fifth year Medical Students in epidemiology, and lectured on hospital organization to W.A.I.T. social work students, and research methods to W.A.I.T. home economics, nutrition and dietetics students.

I would again like to express my thanks to Statistics Branch Staff for their loyal support and co-operation during 1972, and special recognition for the extra work load carried by all, especially the Senior Clerk-Statistics, during the Officer-in-Charge's maternity leave late in the year.

Appendix XVII

Hospital In-Patient Morbidity Statistics: 1968-1972 *

LIST OF ROUTINE TABLES†

Table	Title
1.	Diagnostic Index—Patients by Conditions Treated (Teaching Hospitals Only).
2.	Diagnostic Index—Patients by Operations performed (Teaching Hospitals Only).
3.	Diagnostic Index—Patients by External Cause of Accident (Teaching Hospitals Only). 1a. Modified Index—Patients by Conditions Treated by Race (All Hospitals except Teaching). 1b. Modified Index—Patients by Operations performed (All Hospitals except Teaching). 1c. Modified Index—Patients by External Cause (All Hospitals except Teaching).
4.	Duration of Stay—(Actual and Mean) Patients by External Cause (Private, Government, Total).
5.	Duration of Stay—(Actual and Mean) Patients by Principal Operation (Private, Government, Total).
6.	Duration of Stay—(Actual and Mean) Patients by Principal Condition (Private, Government, Total).
7.	Medical Consultant—Patients in Age Groups by Principal Operation and Mean Length of Stay (Teaching Hospitals Only).
8.	Medical Consultant—Patients in Age Groups by Principal Condition and Mean Length of Stay (Teaching Hospitals Only).
9.	Age Groups—Patients, Sex and Days Stay (Total and Mean) by External Cause (Teaching Hospitals Only).
10.	Age Groups—Patients, Sex and Days Stay (Total and Mean) by Principal Operation (Private, Government, Total).
11.	Age Groups—Patients, Sex and Days Stay (Total and Mean) by Principal Condition (Private, Government, Total).
12.	Postcode of Usual Residence—Patients by Sex (Total State).
13.	Postcode of Usual Residence—Patients by Hospital and Sex (Total State, All Hospitals).
14.	Postcode of Usual Residence—Patients by Principal Operation (Total State).
15.	Postcode of Usual Residence—Patients by Principal Condition (Total State).
17.	Type of Admission—Patients by Day and Time (Teaching Hospitals and Total State).
19.	Occupation—Patients by Sex and External Cause (Private, Government, Total).
20.	Occupation—Patients by Sex and Principal Operation (Private, Government, Total).
21.	Occupation—Patients by Sex and Principal Condition (Private, Government, Total).
22.	Country of Birth—Patients by Principal Operation (Private, Government, Total).
23.	Country of Birth—Patients by Principal Condition (Private, Government, Total).
24.	Financial Classification—Patients by Type of Insurance and Total Stay (Private, Government, Total, by Individual Hospitals).
32.	External Cause and Nature of Injury—Patients by Average Age, Average Stay and Sex (Total State).
33.	Type of Separation and Death Rate—Patients by External Cause (Private, Government, Total).
34.	Type of Separation and Death Rate—Patients by Principal Operation (Private, Government, Total).
35.	Type of Separation and Death Rate—Patients by Principal Condition (Private, Government, Total).
36.	Place to Which Discharged (Private, Government, Total).

* 1968–1970 All tables available for Government Hospitals Only.
1971– Tables available for Private, Government, and Totals as shown Above.

† Most of the above tables can be obtained for individual Hospitals if necessary. Consult Statistics Branch, W.A. Department of Public Health.

DISCHARGES FROM W.A. HOSPITALS 1972
SUMMARY BY AGE GROUPS AND LENGTH OF STAY (DAYS)

Description	AGE GROUPS					Not Stated	Total
	0-4	5-14	15-44	45-64	65+		
All Discharges—							
Number	28,426	25,758	107,007	39,500	28,452	450	229,593
Percentage of Total	12.4	11.2	46.6	17.2	12.4	0.2	100.00
Length of Stay	171,670	111,733	677,878	421,985	521,128	4,657	1,909,051
Percentage of Total	9.0	5.9	35.5	22.1	27.3	0.2	100.00
Average Length of Stay	6.0	4.3	6.3	10.7	18.3	10.3	8.3
Operation Cases Only—							
Number	5,828	13,019	56,274	19,860	10,491	45	105,517
Percentage of Total	5.5	12.3	53.3	18.8	9.9	0.0	100.00
Length of Stay	25,399	52,102	357,264	206,711	174,833	742	817,051
Percentage of Total	3.1	6.4	43.7	25.3	21.4	0.1	100.00
Average Length of Stay	4.4	4.0	6.3	10.4	16.7	16.5	7.7
External Cause (Injury)—							
Number	3,657	4,582	14,745	4,732	2,971	88	30,775
Percentage of Total	11.9	14.9	47.9	15.4	9.7	0.3	100.00
Length of Stay	16,673	21,106	103,056	54,977	60,559	788	257,159
Percentage of Total	6.5	8.2	40.1	21.4	23.5	0.3	100.00
Average Length of Stay	4.6	4.6	7.0	11.6	20.4	9.0	8.4

W.A. HOSPITALS

Patients Discharged During 1972

I.C.D. Categories	Disease Groups	Number of Cases		Number Days in Hospital		Average Number Days in Hospital		Per cent of Total Bed Days		Outcome						
		Male		Female		Male		Female		Male		Female				
Sec. I																
000-009	Intestinal Infectious Diseases	2,698	2,583	18,277	17,580	6.8	6.8	0.96	0.92	5,127	128	26	4			
010-019	Tuberculosis	183	104	9,035	4,032	49.4	38.7	0.47	0.21	254	24	9	31			
020-027	Zoonotic Bacterial Diseases	5	6	77	85	15.4	14.2	0.00	0.00	10	1	...	...	
030-039	Other Bacterial Diseases	187	168	3,729	2,502	19.9	14.9	0.20	0.13	307	20	28	78			
040-046	Poliomyelitis and Other Enterovirus Diseases of Central Nervous System	149	98	858	871	5.8	8.9	0.04	0.05	239	7	1	4			
050-057	Viral Diseases accompanied by Exanthem	247	293	1,899	2,470	7.7	8.5	0.10	0.13	535	4	1	1			
060-068	Arthropod-borne Viral Diseases	25	25	128	205	5.1	8.2	0.01	0.01	47	2	1	20			
070-079	Other Viral Diseases	1,298	1,354	5,606	6,367	4.3	4.7	0.29	0.33	2,616	31	5	1			
080-089	Rickettsioses and Other Arthropod-borne Diseases	29	4	249	30	8.6	7.5	0.01	0.00	33	...	...	...
090-099	Syphilis and Other Venereal Diseases	74	149	275	651	3.7	4.4	0.01	0.03	221	1	1	...			
100-104	Other Spirochaetal Diseases	9	3	38	34	4.2	11.3	0.00	0.00	12	...	...	...
110-117	Mycoses	90	84	635	855	7.0	10.2	0.03	0.04	172	1	1	5			
120-129	Helminthiases	19	25	215	205	11.3	8.2	0.01	0.01	44	...	...	...
130-136	Other Infective and Parasitic Diseases	158	142	1,460	1,217	9.2	8.6	0.08	0.06	299	1	...	...	
Sec. II																
140-149	Malignant Neoplasm of Buccal Cavity and Pharynx	105	37	1,726	603	16.4	16.3	0.09	0.03	118	6	18	126			
150-159	Malignant Neoplasm of Digestive Organs and Peritoneum	394	297	8,629	7,513	21.9	25.3	0.45	0.39	500	21	170	246			
160-163	Malignant Neoplasm of Respiratory System	543	91	10,377	1,696	19.1	18.6	0.54	0.09	447	27	160	252			
170-174	Malignant Neoplasm of Bone, Connective Tissue, Skin and Breast	811	803	7,164	10,818	8.8	13.5	0.38	0.57	1,542	21	51	31			
180-189	Malignant Neoplasm of Genito-Urinary Organs	642	355	8,396	4,910	13.1	13.8	0.44	0.26	881	31	85	85			
190-199	Malignant Neoplasm of Other and Unspecified Sites	530	506	11,198	8,693	21.1	17.2	0.59	0.46	621	77	338	326			
200-209	Neoplasms of Lymphatic and Haematopoietic Tissue	268	218	3,986	3,703	14.9	17.0	0.21	0.19	386	21	79	162			
210-228	Benign Neoplasms	500	1,660	3,067	11,198	6.1	6.7	0.16	0.59	2,133	21	6	2			
230-239	Neoplasm of Unspecified Nature	163	171	1,150	1,421	7.1	8.3	0.06	0.07	297	23	14	41			
Sec. III																
240-246	Diseases of Thyroid Gland	48	304	516	3,343	10.8	11.0	0.03	0.18	343	7	2	5			
250-258	Diseases of Other Endocrine Glands	546	714	8,939	12,286	16.4	17.2	0.47	0.64	1,166	54	40	31			
260-269	Avitaminoses and Other Nutritional Deficiency	354	283	4,230	3,001	11.9	10.6	0.22	0.16	597	32	8	12			
270-279	Other Metabolic Diseases	192	244	2,194	3,539	11.4	14.5	0.11	0.19	422	10	4	9			
Sec. IV																
280-289	Diseases of Blood and Blood Forming Organs	585	586	4,190	7,230	7.2	12.3	0.22	0.38	1,116	36	19	16			

Sec. V	Psychoses	399	463	6,736	8,752	16·9	18·9	0·35	0·46	725	124	13	15
290-299	Neuroses, Personality Disorders and Other Non-Psychotic Mental Disorders	1,616	2,046	20,853	25,387	12·9	12·4	1·09	1·33	3,480	174	8	2
300-309	Mental Retardation	19	13	275	326	14·4	25·1	0·01	0·02	31	1	....	....
310-315													
Sec. VI	Inflammatory Diseases of the Central Nervous System	119	76	1,483	763	12·5	10·0	0·08	0·04	168	16	11	56
320-324	Hereditary and Familial Diseases of Nervous System	18	11	276	200	15·3	18·2	0·01	0·01	27	1	1	34
330-333	Other Diseases of Central Nervous System	928	851	15,034	15,275	16·2	17·9	0·79	0·80	1,604	143	32	17
340-349	Diseases of Nerves and Peripheral Ganglia	383	539	3,765	4,537	9·8	8·4	0·20	0·24	896	25	1	1
350-358	Inflammatory Diseases of the Eye	572	463	3,277	2,934	5·7	6·3	0·17	0·15	1,017	15	3	2
360-369	Other Diseases and Conditions of the Eye	1,537	1,499	12,694	12,272	8·3	8·2	0·66	0·64	2,987	45	4	1
370-379	Diseases of the Ear and Mastoid Process	1,767	1,542	8,617	7,965	4·9	5·2	0·45	0·42	3,251	58	....	....
380-389													
Sec. VII	Active Rheumatic Fever	134	125	2,020	1,677	15·1	13·4	0·11	0·09	244	14	1	3
390-392	Chronic Rheumatic Heart Disease	49	115	638	1,381	13·0	12·0	0·03	0·07	152	5	7	42
393-398	Hypertensive Disease	498	759	5,091	10,078	10·2	13·3	0·27	0·53	1,182	43	32	25
400-404	Ischaemic Heart Disease	2,280	1,296	32,859	19,010	14·4	14·7	1·72	1·00	3,023	109	444	124
410-414	Other Forms of Heart Disease	1,472	1,077	25,161	20,233	17·1	18·8	1·32	1·06	2,156	124	269	105
420-429	Cerebrovascular Disease	1,067	885	24,283	26,399	22·8	29·8	1·27	1·38	1,324	272	356	182
430-438	Diseases of Arteries, Arterioles and Capillaries	423	236	8,748	5,876	20·7	24·9	0·46	0·31	518	62	79	119
440-448	Other Diseases of Circulatory System	1,433	2,242	16,160	24,291	11·3	10·8	0·85	1·27	3,597	42	36	9
450-458													
Sec. VIII	Acute Respiratory Infection (except Influenza)	3,384	2,729	17,072	13,358	5·0	4·9	0·89	0·70	6,047	61	5	....
460-466	Influenza	705	862	4,051	5,706	5·7	6·6	0·21	0·30	1,544	19	4	2
470-474	Pneumonia	2,265	1,494	23,263	14,581	10·3	9·8	1·22	0·76	3,378	124	257	68
480-486	Bronchitis, Emphysema and Asthma	4,063	2,852	36,179	20,540	8·9	7·2	1·90	1·08	6,729	128	58	8
490-493	Other Diseases of Upper Respiratory Tract	4,243	4,185	13,352	14,083	3·1	3·4	0·22	0·22	8,409	17	2	....
500-508	Other Diseases of Respiratory System	1,548	1,371	15,571	14,102	10·1	10·3	0·03	0·07	2,762	91	66	22
510-519													
Sec. IX	Diseases of Oral Cavity, Salivary Glands and Jaws	1,963	2,584	4,593	5,581	2·3	2·2	0·10	0·14	4,539	7	1	....
520-529	Diseases of Oesophagus, Stomach and Duodenum	1,557	899	15,724	8,513	10·1	9·5	0·08	0·05	2,371	62	23	9
530-537	Appendicitis	2,214	2,549	14,743	17,038	6·7	6·7	0·12	0·13	4,693	67	3	....
540-543	Hernia of Abdominal Cavity	2,309	769	18,616	7,134	8·1	9·3	0·12	0·04	3,042	28	8	2
550-553	Other Diseases of Intestine and Peritoneum	1,232	1,252	11,857	14,173	9·6	11·3	0·06	0·07	2,360	77	47	18
560-569	Diseases of Liver, Gall Bladder and Pancreas	1,144	2,152	15,161	25,370	13·3	17·8	0·06	0·11	3,164	79	53	16
570-577													
Sec. X	Nephritis and Nephrosis	262	201	3,541	2,341	13·5	11·6	0·01	0·01	391	33	39	84
580-584	Other Diseases of Urinary System	3,053	3,102	12,757	18,339	4·2	5·9	0·16	0·16	6,037	81	37	6
590-599	Diseases of Male Genital Organs	3,557	....	21,826	....	6·1	....	0·19	....	3,512	38	7	1
600-607	Diseases of Breast, Ovary, Fallopian Tube and Parametrium	81	3,300	376	22,654	4·6	6·9	0·00	0·17	3,361	18	2	....
610-616	Diseases of Uterus and Other Female Genital Organs .....	....	9,018	....	48,558	....	5·4	....	0·47	8,980	37	1	....
620-629													

W.A. HOSPITALS—continued
Patients Discharged During 1972—continued

I.C.D. Categories	Disease Groups	Number of Cases		Number Days in Hospital		Average Number Days in Hospital		Per cent of Total Bed Days		Outcome			
		Male	Female	Male	Female	Male	Female	Male	Female	Discharged	Trans- ferred	Died	Deaths Per 1,000 Separation
Sec. XI 630-634 635-639	Complications of Pregnancy Urinary Infections and Toxaemias of Pregnancy and Puerperium	...	3,206 1,215 3,305 22,219 221	...	12,475 6,633 10,677 195,286 896	...	3.9 5.5 3.2 8.8 4.1	...	0.17 0.06 0.17 1.16 0.01	3,060 1,156 3,282 22,061 214	145 59 22 155 7	1 ... 1 3...	...
640-645 650-662 670-678	Abortion Delivery Complications of the Puerperium	...	...	...	...	...	...	...	...	...	...	...	...
Sec. XII 680-686 690-698	Infections of Skin and Subcutaneous Tissue Other Inflammatory Conditions of Skin and Subcutaneous Tissue	1,627 433	1,146 311	10,951 5,102	9,369 2,392	6.7 11.8	8.2 7.7	0.09 0.02	0.06 0.02	2,737 733	34 9	2 2	...
700-709	Other Diseases of Skin and Subcutaneous Tissue	1,543	1,482	11,564	11,373	7.5	7.7	0.08	0.08	2,996	26	3	...
Sec. XIII 710-718	Arthritis and Rheumatism except Rheumatic Fever	1,068	1,237	20,494	27,413	19.2	22.2	0.06	0.06	2,228	68	9	3
720-729	Osteomyelitis and Other Diseases of Bone and Joint	2,618	1,962	25,148	18,784	9.6	9.6	0.14	0.10	4,482	93	5	1
730-738	Other Diseases of Musculoskeletal System	709	1,086	5,178	10,209	7.3	9.4	0.04	0.06	1,783	7	5	2
Sec. XIV 740-759	Congenital Anomalies	1,146	776	10,618	6,494	9.3	8.4	0.06	0.04	1,804	73	45	23
Sec. XV 760-779	Certain Causes of Perinatal Morbidity and Mortality	340	306	5,141	4,873	15.1	15.9	0.02	0.02	600	33	13	20
Sec. XVI 780-789 790-796	Symptoms Referable to Systems or Organs Ill Defined Diseases	6,905 1,049	6,669 1,764	37,723 22,090	36,210 39,965	5.5 21.0	5.4 22.7	0.36 0.05	0.35 0.09	13,033 2,535	426 163	115 115	8 40
Sec. XVII 800-809 810-819 820-829 830-839 840-848	Fracture of Skull, Spine and Trunk Fracture of Upper Limb Fracture of Lower Limb Dislocation without Fracture Sprains and Strains of Joints and Adjacent Muscles	1,614 1,767 1,553 625 944	628 1,242 1,067 208 443	19,327 8,046 29,588 4,181 5,989	8,929 5,487 27,750 1,419 2,949	12.0 4.6 19.1 6.7 6.3	14.2 4.4 26.0 6.8 6.7	0.08 0.09 0.08 0.03 0.05	0.03 0.07 0.06 0.01 0.02	2,059 2,946 2,341 817 1,354	135 58 231 15 33	48 5 48 1 ...	21 1 18 1 ...
850-854	Intracranial Injury (excluding those with Skull Fracture)	2,596	1,190	9,528	3,853	3.7	3.2	0.14	0.06	3,650	100	36	9
860-869	Internal Injury of Chest, Abdomen and Pelvis	234	92	2,947	884	12.6	9.6	0.01	0.00	289	19	18	55
870-879	Laceration and Open Wound of Head, Neck and Trunk	1,120	526	5,730	2,445	5.1	4.6	0.06	0.03	1,616	27	3	1
880-887	Laceration and Open Wound of Upper Limb	1,420	332	6,011	1,414	4.2	4.3	0.07	0.02	1,721	31	...	...
890-897	Laceration and Open Wound of Lower Limb	734	362	5,150	2,528	7.0	7.0	0.04	0.02	1,083	13	...	...

W.A. HOSPITALS—continued

Patients Discharged During 1972—continued

I.C.D. Categories	Disease Groups	Number of Cases		Number Days in Hospital		Average Number Days in Hospital		Per cent of Total Bed Days		Outcome			Deaths Per 1,000 Separation
		Male	Female	Male	Female	Male	Female	Male	Female	Discharged	Trans- ferred	Died	
Sec. XVII -continued 900-907	Laceration and Open Wound of Multiple Loca- tion	220	102	1,166	588	5.3	5.8	0.01	0.01	314	8	...	...
	Superficial Injury	283	144	1,342	1,056	4.7	7.3	0.01	0.01	418	9	...	...
	Contusion and Crushing with Intact Skin Sur- face	790	387	3,875	1,984	4.9	5.1	0.04	0.02	1,147	28	2	1
	Effects of Foreign Body Entering through Orifice	299	221	760	625	2.5	2.8	0.02	0.01	506	14	...	...
	Burn	967	404	10,937	4,517	11.3	11.2	0.05	0.02	1,325	37	9	6
	Injury to Nerves and Spinal Cord	71	31	542	200	7.6	6.5	0.00	0.00	91	10	1	9
	Adverse Effect of Medicinal Agents	684	1,391	3,301	7,154	4.8	5.1	0.04	0.07	1,955	111	9	4
	Toxic Effect of Substances Chiefly Non-Medi- cinal as to Source	774	412	1,985	1,062	2.6	2.6	0.04	0.02	1,161	19	6	5
	Other Adverse Effects	1,874	1,274	13,112	9,428	7.0	7.4	0.10	0.07	3,030	104	14	4
	Sec. Y Y00-Y09	Examination and Investigation of Specific Systems without reported diagnosis	1,405	3,271	4,665	7,988	3.3	2.4	0.07	0.17	4,598	74	4
Other Examinations Without Reported Diag- nosis		16	14	352	41	22.0	2.9	0.00	0.00	30	...	...	...
Medical and Surgical Procedures without Re- ported Diagnosis		179	132	528	307	2.9	2.3	0.01	0.01	292	19	...	...
Medical and Surgical Aftercare without Current Complaint or Sickness		1,665	982	10,809	6,086	6.5	6.2	0.09	0.05	2,617	29	1	...
Persons Undergoing Preventive Measures		191	2,173	237	6,191	1.2	2.8	0.01	0.11	2,357	7	...	...
Elective Surgery		478	329	1,084	2,594	2.3	7.9	0.03	0.02	807	...	...	...
Maternal and Well-baby Care		135	903	2,774	7,199	20.5	8.0	0.01	0.05	963	75	...	...
Other Persons without Current Complaint or Sickness		152	190	763	1,206	5.0	6.3	0.01	0.01	328	14	...	..
Healthy Live Born Infants according to Type of Birth		...	...	...	...	...	...	...	...	...	...	...	...
		Total	99,374	130,219	843,633	1,065,418	8.5	8.2	44.19	55.81	220,705	5,387	3,501	15
	Grand Total, Male and Female	229,593		1,909,051		8.3		100.00					

Age Distribution of Patients Discharged by Sex and Principal Condition

I.C.D. Categories	Principal Condition	Age Groups													Total All Ages			
		Males																
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64		65-69	70+	Not Stated
000-136	Infective and Parasitic	2,509	615	327	226	260	238	142	103	103	96	100	89	94	83	170	11	5,171
140-239	Neoplasms	90	79	52	36	65	66	95	96	142	260	290	390	529	635	1,127	4	3,956
240-279	Endocrine, Nutritional, Metabolic	322	35	23	25	27	35	26	35	48	65	72	79	89	77	175	7	1,140
280-289	Blood and Blood Forming Organs	114	105	72	29	13	15	13	10	16	15	23	25	33	29	73	...	585
290-315	Mental Disorders	93	23	30	69	131	121	101	155	183	241	252	183	143	122	183	4	2,034
320-389	Nervous System and Sense Organs	1,116	667	346	212	289	209	234	210	241	267	251	239	292	275	474	2	5,324
390-458	Circulatory System	26	54	49	64	119	125	188	242	368	564	657	846	1,006	1,036	2,003	9	7,356
460-519	Respiratory System	5,331	2,745	1,114	655	598	557	391	293	334	374	427	555	647	749	1,403	35	16,208
520-577	Digestive System	848	914	825	687	859	724	565	547	582	653	560	653	647	524	825	6	10,419
580-629	Genito-Urinary System	452	210	257	196	262	485	826	826	773	486	370	283	307	439	772	9	6,953
680-709	Skin and Subcutaneous Tissue	494	318	231	321	360	265	210	170	169	189	198	145	160	156	208	9	3,603
710-738	Musculoskeletal System	104	148	140	227	350	325	320	344	357	371	341	362	344	284	373	5	4,395
740-759	Congenital Anomalies	514	259	147	51	45	23	16	17	10	10	12	12	12	9	9	...	1,146
760-779	Perinatal Morbidity	338	674	484	291	386	438	352	380	417	469	418	444	472	446	923	30	7,954
780-796	Symptoms and Ill-defined Conditions	1,330	1,322	1,446	2,548	2,620	1,821	1,234	981	918	876	650	549	507	344	614	49	18,569
N800-N999	Accidents, Poisoning & Violence	2,090	226	142	248	305	280	264	226	231	221	241	261	248	203	260	7	4,221
Y00-Y89	Supplementary Classifications	857																
	Male Total	16,628	8,394	5,685	5,885	6,689	5,727	4,977	4,635	4,897	5,157	4,862	5,115	5,530	5,411	9,592	189	99,374
	Females																	
000-136	Infective and Parasitic	2,023	473	311	398	377	265	195	153	112	101	116	104	83	78	233	16	5,038
140-239	Neoplasms	67	51	79	185	211	216	211	251	306	368	377	368	367	343	736	2	4,138
240-279	Endocrine, Nutritional, Metabolic	268	20	37	42	74	87	67	99	79	90	119	99	131	106	223	4	1,545
280-289	Blood and Blood Forming Organs	53	69	59	21	32	22	24	28	32	28	31	24	24	36	103	...	586
290-315	Mental Disorders	85	17	46	171	256	254	267	218	237	193	173	154	134	113	199	5	2,522
320-389	Nervous System and Sense Organs	920	553	321	224	209	208	219	232	204	262	261	245	236	264	612	11	4,981
390-458	Circulatory System	18	40	46	66	148	225	330	365	408	472	526	594	639	738	2,108	12	6,735
460-519	Respiratory System	3,570	2,409	1,102	977	755	628	446	349	367	387	380	382	431	402	858	50	13,493
520-577	Digestive System	578	836	865	1,221	1,142	850	648	545	517	488	457	488	408	388	762	12	10,205
580-629	Genito-Urinary System	176	168	141	937	2,179	2,751	2,294	1,887	1,618	1,136	880	402	295	286	451	20	15,621
630-678	Pregnancy and Childbirth	...	...	58	4,164	11,040	9,057	3,843	1,485	450	40	...	...	...	...	...	29	30,166
680-709	Skin and Subcutaneous Tissue	408	250	221	291	214	176	151	116	131	157	153	136	147	115	259	14	2,939
710-738	Musculoskeletal System	76	79	137	218	246	218	264	303	319	364	381	371	339	345	622	3	4,285
740-759	Congenital Anomalies	294	104	71	75	52	34	36	19	18	24	9	8	11	11	10	...	776
760-779	Perinatal Morbidity	305	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	306
780-796	Symptoms and Ill-defined Conditions	1,167	577	482	695	740	632	541	449	415	366	342	350	429	317	906	25	8,433
N800-N999	Accidents, Poisoning & Violence	1,444	898	835	1,099	878	623	564	476	451	402	429	413	408	355	1,143	38	10,456
Y00-Y89	Supplementary Classifications	346	171	153	577	1,392	1,521	1,124	753	507	400	306	247	151	119	208	19	7,994
	Female Total	11,798	6,715	4,964	11,361	19,945	17,767	11,224	7,728	6,171	5,278	4,940	4,385	4,233	4,016	9,433	261	130,219
	Grand Total Male and Female	28,426	15,109	10,649	17,246	26,634	23,494	16,201	12,363	11,068	10,435	9,802	9,500	9,763	9,427	19,025	450	229,593

Age Distribution of Aborigines Discharged by Sex and Principal Conditions

I.C.D. Category	Principal Conditions	AGE GROUPS															Total All Ages	
		Males																
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+		Not Stated
000-136	Infective and Parasitic	876	90	32	12	17	14	10	12	9	3	10	3	7	9	15	11	1,130
140-239	Neoplasms	5	7	....	....	2	....	5	2	....	6	1	1	2	9	1	3	44
240-279	Endocrine, Nutritional, Metabolic	76	2	....	1	....	....	1	4	3	7	....	9	6	9	7	7	132
280-289	Blood and Blood Forming Organs	27	23	....	1	....	1	2	1	....	....	2	1	....	1	....	....	68
290-315	Mental Disorders	7	3	2	3	5	5	3	7	12	3	9	5	2	1	3	1	71
320-389	Nervous System and Sense Organs	324	101	48	17	16	13	19	12	22	7	6	10	14	10	12	2	633
390-458	Circulatory System	3	4	5	7	5	6	1	6	15	13	18	15	24	12	25	9	168
460-519	Respiratory System	1,245	224	82	48	23	17	16	42	46	36	45	21	31	34	57	34	2,001
520-577	Digestive System	69	23	15	10	12	10	16	15	9	11	6	4	2	6	6	1	215
580-629	Genito-Urinary System	30	15	12	11	9	7	4	1	6	4	3	5	6	4	12	8	137
680-709	Skin and Subcutaneous Tissue	184	104	35	31	22	17	22	19	21	14	14	6	7	12	6	8	522
710-738	Musculoskeletal System	12	13	7	4	6	6	10	12	6	3	6	4	5	4	5	4	107
740-759	Congenital Anomalies	22	8	3	....	....	....	....	....	1	....	1	....	....	....	....	....	35
760-779	Perinatal Morbidity	30	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	31
780-796	Symptoms and Illdefined Conditions	227	80	42	15	21	22	23	18	18	13	17	18	22	22	17	25	600
N800-N999	Accidents, Poisoning, Violence	234	128	73	97	130	86	65	90	55	41	35	31	26	9	18	28	1,146
Y00-Y89	Supplementary Classifications	91	5	4	5	5	5	4	7	3	2	4	5	3	....	3	6	152
	Male Total	3,462	830	369	262	273	209	201	248	226	163	177	138	157	142	187	148	7,192
Females																		
000-136	Infective and Parasitic	761	66	31	41	32	17	12	16	9	7	6	7	15	8	14	16	1,058
140-239	Neoplasms	5	1	4	4	1	1	3	3	7	3	5	3	....	2	3	2	47
240-279	Endocrine, Nutritional, Metabolic	53	2	2	....	7	9	5	13	5	7	19	12	13	5	5	4	161
280-289	Blood and Blood Forming Organs	15	9	10	5	6	6	2	1	2	1	....	....	....	....	....	....	57
290-315	Mental Disorders	5	1	4	13	10	9	24	11	9	8	4	1	....	....	1	4	104
320-389	Nervous System and Sense Organs	236	86	63	40	14	7	13	16	13	14	8	8	12	17	14	9	570
390-458	Circulatory System	5	5	14	5	9	8	10	13	10	9	21	12	17	13	19	8	178
460-519	Respiratory System	991	165	76	67	59	41	30	54	46	38	35	27	44	22	38	48	1,781
520-577	Digestive System	40	41	11	28	17	13	20	21	19	7	9	3	3	4	6	10	252
580-629	Genito-Urinary System	23	14	14	74	63	65	33	24	24	11	7	14	6	5	3	18	398
630-678	Pregnancy and Childbirth	....	....	13	421	390	233	123	92	23	3	....	....	....	....	....	22	1,320
680-709	Skin and Subcutaneous Tissue	178	80	48	24	18	19	17	7	15	9	10	4	14	7	9	12	471
710-738	Musculoskeletal System	6	14	9	1	6	8	3	5	8	7	8	6	6	2	3	2	94
740-759	Congenital Anomalies	21	4	2	2	....	....	....	....	2	....	....	....	....	....	....	....	31
760-779	Perinatal Morbidity	19	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	19
780-796	Symptoms and Illdefined Conditions	193	79	42	63	62	42	54	35	28	16	18	12	26	14	37	21	742
N800-N999	Accidents, Poisoning, Violence	132	91	41	68	111	86	66	76	43	28	36	16	18	8	19	30	869
Y00-Y89	Supplementary Classifications	78	11	10	71	84	42	30	25	13	7	6	3	....	1	3	18	402
	Female Total	2,761	669	394	927	889	606	445	412	276	175	192	128	174	108	174	224	8,554
	Grand Total, Male and Female	6,223	1,499	763	1,189	1,162	815	646	660	502	338	369	266	331	250	361	372	15,746

W.A. HOSPITALS, 1972

Patients Discharged by Race and Principal Condition

I.C.D. Category	Principal Condition Groups	Discharges			Days in Hospital				Average Number of Days in Hospital			% of Total Bed Days		
		Aboriginal		Non-Aboriginal	Total	Aboriginal		Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total		
		Number	% for Group			Number	% for Group							
000-136	Infective and Parasitic	2,188	21.4	8,021	26,784	33.7	52,801	66.3	79,585	12.2	6.6	1.40	2.77	4.17
140-239	Neoplasms	91	1.1	8,003	1,992	1.9	104,256	98.1	106,248	21.9	13.0	0.10	5.46	5.56
240-279	Endocrine, Nutritional, Metabolic	293	10.9	2,392	4,622	12.1	33,426	87.9	38,048	15.8	14.0	0.24	1.75	1.99
280-289	Blood and Blood Forming Organs	125	10.7	1,046	1,049	9.2	10,371	90.8	11,420	8.4	9.9	0.05	0.54	0.59
290-315	Mental Disorders	175	3.8	4,381	1,128	1.8	61,201	98.2	62,329	6.4	14.0	0.06	3.21	3.27
320-389	Nervous System and Sense Organs	1,203	11.7	9,102	14,899	16.7	74,193	83.3	89,092	12.4	8.2	0.78	3.89	4.67
390-458	Circulatory System	346	2.5	13,745	7,143	3.2	216,762	93.8	223,905	20.6	15.8	0.37	11.35	11.72
460-519	Respiratory System	3,782	12.7	25,919	32,209	16.8	159,649	83.2	191,858	8.5	6.2	1.69	8.36	10.05
520-577	Digestive System	467	2.3	20,157	4,344	2.7	154,159	97.3	158,503	9.3	7.6	0.23	8.03	8.31
580-629	Genito-Urinary System	535	2.4	22,039	4,264	3.3	126,128	96.7	130,392	8.0	5.7	0.22	6.61	6.83
630-678	Pregnancy and Childbirth	1,320	4.4	28,846	10,760	4.8	215,207	95.2	225,967	8.2	7.5	0.56	11.27	11.83
680-709	Skin and Subcutaneous Tissue	993	15.2	5,549	8,816	17.4	41,935	82.6	50,751	8.9	7.6	0.46	2.20	2.66
710-738	Musculoskeletal System	201	2.3	8,479	2,438	2.3	104,788	97.7	107,226	12.1	12.4	0.13	5.49	5.62
740-759	Congenital Anomalies	66	3.4	1,856	1,379	8.1	15,733	91.9	17,112	20.9	8.5	0.07	0.82	0.89
760-779	Perinatal Morbidity	50	7.7	596	1,284	12.8	8,730	87.2	10,014	25.7	14.6	0.07	0.46	0.53
780-796	Symptoms and Illdefined Conditions	1,342	8.2	15,045	10,204	7.5	125,784	92.5	135,988	7.6	8.4	0.53	6.59	7.12
N800-N999	Accidents, Poisoning, Violence	2,015	6.9	27,010	14,885	6.8	202,904	93.2	217,789	7.4	7.5	0.78	10.63	11.41
Y00-Y89	Supplementary Classifications	554	4.5	11,661	5,755	10.9	47,069	89.1	52,824	10.4	4.0	0.30	2.47	2.77
	Total	15,746	6.9	213,847	153,955	8.1	1,755,096	91.9	1,909,051	9.8	8.2	8.06	91.94	100.00

W.A. HOSPITALS 1972

Patients Discharged by Principal Condition and Type of Hospital

I.C.D. Categories	Principal Condition Groups	Discharges				Days in Hospital				Average Number of Days in Hospital				Percentage of Total Bed Days											
		Teaching		Private		Other Govt. and Board		All Hos- pitals		Teaching		Private		Other Govt. and Board		All Hos- pitals		Teach- ing		Private		Other Govt. and Board		All Hos- pitals	
		No.	% for Group	No.	% for Group	No.	% for Group	No.	% for Group	No.	% for Group	No.	% for Group	No.	% for Group	No.	% for Group	No.	% for Group	No.	% for Group	No.	% for Group	No.	% for Group
000-136	Infective and Parasitic	2,704	26.49	970	9.50	6,535	64.01	10,209	32,214	40.48	5,154	6.48	42,217	53.05	79,585	11.9	1.69	0.27	2.21	4.17					
140-239	Neoplasms	3,924	48.48	2,077	25.66	2,093	25.86	8,034	61,731	58.10	19,165	18.04	25,352	23.86	106,248	15.7	3.23	1.00	1.33	5.57					
240-279	Endocrine, Nutritional, Metabolic	848	31.58	507	18.88	1,330	49.53	2,685	12,433	32.63	6,870	18.06	18,745	49.27	38,048	14.7	0.65	0.36	0.98	1.99					
280-289	Blood and Blood Forming Organs	437	37.32	223	19.04	511	43.64	1,171	4,053	35.49	1,749	15.32	5,618	49.19	11,420	9.3	0.21	0.09	0.29	0.60					
290-315	Mental Disorders	1,653	36.28	995	21.84	1,908	41.88	4,556	24,915	39.97	13,851	22.22	23,563	37.80	62,329	15.1	1.31	0.73	1.23	3.26					
320-389	Nervous System and Sense Organs	3,711	36.01	3,209	31.14	3,385	32.85	10,305	36,383	40.83	15,687	17.61	37,022	41.56	89,032	9.8	1.91	0.82	1.94	4.67					
390-458	Circulatory System	5,420	38.46	2,647	18.79	6,024	42.75	14,091	89,607	40.02	31,684	14.15	102,614	45.83	223,905	16.5	4.69	1.66	5.38	11.73					
460-519	Respiratory System	7,101	23.91	5,469	18.41	17,131	57.68	29,701	48,813	25.44	25,114	13.09	117,931	61.47	191,858	6.9	2.56	1.32	6.18	10.05					
520-577	Digestive System	4,911	23.81	6,502	31.53	9,211	44.66	20,624	51,169	32.28	46,769	29.51	60,565	38.21	158,503	10.4	1.86	2.47	2.50	6.83					
580-629	Genito-Urinary System	6,279	27.82	7,559	33.49	8,736	38.70	22,574	35,601	27.30	47,157	36.17	47,634	36.53	130,392	5.7	2.18	3.60	6.06	11.84					
630-678	Pregnancy and Childbirth	6,057	20.08	8,337	27.64	15,772	52.28	30,166	41,531	18.38	68,692	30.40	113,744	51.22	225,967	6.9	2.18	0.51	1.45	2.66					
680-709	Skin and Subcutaneous Tissue	1,065	16.28	1,738	26.57	3,739	57.15	6,542	13,295	26.20	9,747	19.21	27,703	54.60	50,751	12.5	2.55	1.31	1.76	5.62					
710-738	Musculoskeletal System	2,469	28.44	3,036	34.98	3,175	36.58	8,680	48,587	45.31	24,945	23.26	33,694	31.42	107,226	19.7	0.68	0.11	0.10	0.90					
740-759	Congenital Anomalies	1,222	63.58	433	22.53	267	13.89	1,922	13,005	76.09	2,160	12.62	1,947	11.38	17,112	10.6	0.05	0.19	0.28	0.52					
760-779	Perinatal Morbidity	97	15.02	194	30.03	355	54.95	646	988	9.87	3,707	37.02	5,319	53.12	10,014	10.2	0.05	0.19	0.28	0.52					
780-796	Symptoms and Illdefined Conditions	4,036	24.63	2,337	14.26	10,014	61.11	16,387	23,657	17.40	18,480	13.59	93,851	69.01	135,988	5.9	1.24	0.97	4.92	7.12					
N800-N999	Accidents, Poisoning, Violence	12,295	42.36	2,802	9.65	13,928	47.99	29,025	121,347	55.72	18,378	8.44	78,064	35.84	217,789	9.9	6.36	0.96	4.09	11.41					
Y00-Y89	Supplementary Classifications...	2,709	22.18	4,702	38.49	4,804	39.33	12,215	14,490	27.44	19,497	36.91	18,837	35.66	52,824	5.3	0.76	1.02	0.99	2.77					
	Total	66,938	29.16	53,737	23.41	108,918	47.44	229,593	673,819	35.30	378,806	19.84	856,426	44.86	1909051	10.1	35.30	19.84	44.86	100.00					

Patients Discharged by Principal Condition and Type of Hospital

I.C.D Categories	Principal Condition Groups	Discharges									
		Metropolitan					Country				
		Teaching		Government		Private		Total		Govt. and Board	
		Number	% for Group	Number	% for Group	Number	% for Group	Number	% for Group	Number	% for Group
000-136	Infective and Parasitic	2,704	26.5	788	7.7	577	5.7	4,069	39.9	5,747	56.3
140-239	Neoplasms	3,924	48.5	1,192	14.7	1,969	24.3	7,085	87.5	901	11.1
240-279	Endocrine, Nutritional, Metabolic	848	31.6	254	9.5	441	16.4	1,543	57.5	1,076	40.1
280-289	Blood and Blood Forming Organs	437	37.3	111	9.5	192	16.4	740	63.2	400	34.2
290-315	Mental Disorders	1,653	36.3	647	14.2	881	19.3	3,181	69.8	1,261	27.7
320-389	Nervous System and Sense Organs	3,711	36.0	591	5.7	3,037	29.5	7,339	71.2	2,794	27.1
390-458	Circulatory System	5,420	38.5	1,864	13.2	2,313	16.4	9,597	68.1	4,160	29.5
460-519	Respiratory System	7,101	23.9	3,300	11.1	4,663	15.7	15,064	50.7	13,831	46.6
520-577	Digestive System	4,911	23.8	2,967	14.4	5,577	27.0	13,455	65.2	6,244	30.3
580-629	Genito-Urinary System	6,279	27.8	3,762	16.7	7,169	31.8	17,210	76.2	4,974	22.0
630-678	Pregnancy and Childbirth	6,057	20.1	7,196	23.9	7,735	25.6	20,988	69.6	8,576	28.4
680-709	Skin and Subcutaneous Tissue	1,065	16.3	892	13.6	1,530	23.4	3,487	53.3	2,847	43.5
710-738	Musculoskeletal System	2,469	28.4	1,128	13.0	2,888	33.3	6,485	74.7	2,047	23.6
740-759	Congenital Anomalies	1,222	63.6	121	6.3	412	21.4	1,755	91.3	146	7.6
760-779	Perinatal Morbidity	97	15.0	156	24.1	194	30.0	447	69.2	199	30.8
780-796	Symptoms and Illdefined Conditions	4,036	24.6	1,246	7.6	1,761	10.7	7,043	43.0	8,768	53.5
N800-N999	Accidents, Poisoning, Violence	12,295	42.4	1,695	5.8	2,252	7.8	16,242	56.0	12,233	42.1
Y00-Y89	Supplementary Classifications...	2,709	22.2	1,835	15.0	4,437	36.3	8,981	73.5	2,969	24.3
	Total	66,938	29.2	29,745	13.0	48,028	20.9	144,711	63.0	79,173	34.5
										5,709	2.5
										84,832	37.0
											229,593

W.A. HOSPITALS
Operation Cases Discharged During 1972

Code of Surgical Procedures	Operation Group	Number of Cases		Number Days in Hospital		Average Number Days in Hospital		Per cent. of Operation Bed Days		Outcome			
		Male	Female	Male	Female	Male	Female	Male	Female	Dis- charged	Trans- ferred	Died	Deaths per 1,000 Separations
Sec. I													
001-019	Skull, Brain and Cerebral Meninges	221	115	7,922	3,825	35.8	33.3	0.97	0.47	230	55	51	151
020-029	Spine and Spinal Cord	656	442	11,072	7,280	16.9	16.5	1.36	0.89	1,019	63	16	14
030-035	Cranial Nerves	14	19	184	170	13.1	8.9	0.02	0.02	31	1	1	30
036-039	Autonomic Nervous System (Sympathetic and Parasympathetic)	66	53	1,987	1,288	30.1	24.3	0.24	0.16	114	1	4	33
040-049	Peripheral Nerves	335	461	1,421	2,482	4.2	5.4	0.17	0.30	793	1	2	2
Sec. II													
061-063	Pituitary	3	9	57	152	19.0	16.9	0.01	0.02	11	1	...	...
065-069	Adrenal	4	16	156	373	39.0	23.3	0.02	0.05	18	...	2	100
071-076	Thyroid and Parathyroid	31	168	259	1,784	8.4	10.6	0.03	0.22	199	...	...	...
077-079	Thymus and Carotid Body	1	...	16	...	16.0	...	0.00	...	1	...	...	...
080-089	Surgery of Neck	287	232	3,705	2,237	12.9	9.6	0.45	0.27	460	51	8	15
Sec. III													
100-109	Orbit and Globe	96	51	788	372	8.2	7.3	0.10	0.05	145	2	...	...
110-115	Eye Muscles of Globe	311	354	1,386	1,504	4.5	4.2	0.17	0.18	664	1	...	...
117-129	Eyelids	296	291	1,759	1,590	5.9	5.5	0.22	0.19	581	5	1	1
132-139	Conjunctiva	403	244	1,416	1,053	3.5	4.3	0.17	0.13	646	1	...	...
140-149	Cornea	81	31	1,289	448	15.9	14.5	0.16	0.05	112	...	...	...
150-159	Iris and Ciliary Body	77	78	945	987	12.3	12.7	0.12	0.12	155	...	...	...
160-169	Sclera, Choroid, Retina and Vitreous	99	77	1,359	960	13.7	12.5	0.17	0.12	175	1	...	...
170-179	Lens	345	373	5,712	5,512	16.6	14.8	0.70	0.67	700	14	4	5
180-189	Lacrimal Apparatus	164	200	362	633	2.2	3.2	0.04	0.08	364	...	...	...
Sec. IV													
190-209	Ear	1,341	1,030	5,088	4,220	3.8	4.1	0.62	0.52	2,340	30	1	...
210-224	Nose	1,620	989	5,892	4,264	3.6	4.3	0.72	0.52	2,601	7	1	...
225-229	Accessory Air Sinuses and other Parts of Face	88	79	480	431	5.5	5.5	0.06	0.05	167	...	...	...
230-239	Naso-pharynx	3,016	3,413	8,552	10,399	2.8	3.0	1.05	1.27	6,422	7	...	...
240-249	Larynx and Trachea	289	128	3,734	1,688	12.9	13.2	0.46	0.21	381	10	26	62
Sec. V													
250-259	Teeth and Jaws	1,751	2,349	4,367	4,935	2.5	2.1	0.53	0.60	4,087	10	3	...
260-267	Tongue and Mouth	118	76	800	386	6.8	5.1	0.10	0.05	192	2	...	...
270-273	Salivary Glands (Parotid, Sublingual, Submandibular Glands)	67	67	362	482	5.4	7.2	0.04	0.06	134	...	...	...
280-283	Pharynx	13	13	156	192	12.0	14.8	0.02	0.02	26	...	...	...
290-299	Oesophagus	270	270	2,205	1,827	8.2	6.8	0.27	0.22	528	9	3	1

Sec. VI	Heart	265	185	3,753	2,224	14.2	12.0	0.46	0.27	406	22	22	48
300-309	Intra Thoracic Vessels	61	32	721	389	11.8	12.2	0.09	0.05	66	13	14	139
320-329	Thoracic Cage	181	98	3,861	2,026	21.3	20.7	0.47	0.25	259	15	5	53
330-339	Lung and Bronchus	305	98	5,289	1,448	17.3	14.8	0.65	0.18	378	10	15	24
Sec. VII	Breast	88	1,462	517	10,771	5.9	7.4	0.06	1.32	1,544	2	4	1
380-389													
Sec. VIII	Abdominal Wall	281	654	5,476	7,955	19.5	12.2	0.67	0.97	838	77	20	82
400-409	Hernia	2,123	598	17,423	5,892	8.2	9.9	2.13	0.72	2,704	4	13	1
410-419	Stomach	658	351	9,841	4,804	15.0	13.7	1.20	0.59	968	27	14	26
420-439	Appendix	2,006	2,338	14,079	16,544	7.0	7.1	1.72	2.02	4,303	2	39	...
440-445	Other Diverticulæ	8	7	112	77	14.0	11.0	0.01	0.01	15	...	...	...
446	Small Intestine-Colon	420	424	7,237	7,916	17.2	18.7	0.89	0.97	788	43	13	50
450-469	Rectum	139	112	2,617	2,176	18.8	19.4	0.32	0.27	238	9	4	35
470-479	Anus	1,149	836	9,916	7,309	8.6	8.7	1.21	0.89	1,980	...	5	...
480-499	Liver	62	67	829	1,023	13.4	15.3	0.10	0.13	124	4	1	31
500-509	Bile Ducts	36	60	891	1,182	24.8	19.7	0.11	0.14	89	6	1	62
510-519	Gall Bladder	358	1,152	6,226	16,125	17.4	14.0	0.76	1.97	1,494	6	10	3
520-529	Pancreas	12	4	338	73	28.2	18.3	0.04	0.01	14	2	...	125
530-539	Spleen and Abdominal Venous System	51	35	1,141	717	22.4	20.5	0.14	0.09	82	4	...	46
540-549	Abdominal Structures, N.E.C.	51	23	927	404	18.2	17.6	0.11	0.05	13,699	189	127	13
Sec. IX	Kidney	286	209	3,407	3,065	11.9	14.7	0.42	0.38	471	10	14	20
560-579	Ureter	385	397	3,329	2,664	8.6	6.7	0.41	0.33	769	5	8	6
580-589	Urinary Bladder	1,780	956	12,309	4,055	6.9	4.2	1.51	0.50	2,692	16	28	5
600-619	Urethra	407	138	2,280	716	5.6	5.2	0.28	0.09	543	1	1	1
620-629	Prostate	755	...	15,074	...	20.0	...	1.84	...	724	18	13	23
630-637	Seminal Vesicles	...	...	...	...	...	...	...	...	...	...	...	...
639	Testis, Epididymis and Scrotum	3,249	...	9,908	...	3.0	...	1.21	...	3,242	1	6	...
640-669													
Sec. X	Ovary	...	409	...	4,384	...	10.7	...	0.54	399	3	7	7
671-679	Oviduct (Fallopian Tube)	...	4,160	...	26,481	...	6.4	...	3.24	4,146	...	14	...
681-689	Uterus (Hysterectomy)	...	10,418	...	48,266	...	4.6	...	5.91	10,390	3	25	...
690-709	Vagina	...	602	...	7,436	...	12.4	...	0.91	599	...	3	...
710-729	Introitus, Vulva, Labia and Perineum	...	392	...	1,627	...	4.2	...	0.20	392	...	...	...
730-739													
Sec. XI	Ante-natal Obstetric Operations	...	2,212	...	10,152	...	4.6	...	1.24	2,206	...	6	...
740-750	Delivery Obstetric Operations	...	5,661	...	54,986	...	9.7	...	6.73	5,639	3	19	...
751-769	Post-Natal or Post-Abortion	...		...		...		...					...
770-779	Obstetric Operations	...	2,021	...	9,343	...	4.6	...	1.14	2,012	1	8	...

W.A. HOSPITALS—continued
Operation Cases Discharged During 1972—continued

Code of Surgical Procedures	Operation Group	Number of Cases		Number Days in Hospital		Average Number Days in Hospital		Per cent. of Operation Bed Days		Outcome			
		Male	Female	Male	Female	Male	Female	Male	Female	Dis- charged	Trans- ferred	Died	Deaths per 1,000 Separations
Sec. XII													
780-788	Treatment of Fractures ...	2,091	1,523	24,058	20,020	11.5	13.1	2.94	2.45	3,499	86	29	8
790-799	Bone ...	556	589	8,578	10,038	15.4	17.0	1.05	1.23	1,120	13	12	10
800-822	Joints ...	2,314	1,975	23,996	26,274	10.4	13.3	2.94	3.22	4,236	39	14	3
825-826	Capsule and Ligaments of Joints	73	39	565	228	7.7	5.8	0.07	0.03	110	1	1	8
827-828	Bursae ...	62	15	409	146	6.6	9.7	0.05	0.02	77	...	...	...
830-839	Muscles ...	42	39	469	525	11.2	13.5	0.06	0.06	77	3	1	12
840-852	Tendon ...	654	556	3,182	3,206	4.9	5.8	0.39	0.39	1,204	5	1	...
854-859	Fascia ...	143	34	878	291	6.1	8.6	0.11	0.04	177	...	...	...
860-879	Amputations and Other Operations on Limbs ...	366	134	6,598	3,792	18.0	28.3	0.81	0.46	480	11	9	18
Sec. XIII													
880-889	Arteries ...	211	139	2,145	1,495	10.2	10.8	0.26	0.18	300	32	18	51
890-898	Veins ...	346	1,167	3,643	10,967	10.5	9.4	0.45	1.34	1,504	6	3	1
900-909	Lymphatics ...	89	72	841	678	9.4	9.4	0.10	0.08	154	3	4	24
Sec. XIV													
910-929	Skin and Subcutaneous Tissue ...	4,978	3,706	29,796	20,643	6.0	5.6	3.65	2.53	8,608	61	15	1
930-939	Plastic Operations ...	1,009	580	10,266	6,530	10.2	11.3	1.26	0.80	1,578	10	1	...
Sec. XV													
940-950	Injection for General Action ...	2,363	1,526	11,271	9,142	4.8	6.0	1.38	1.12	3,736	43	110	28
952-959	Operations with Site Unspecified	12	14	159	199	13.3	14.2	0.02	0.02	26	...	...	...
960-969	Non-operative Procedures ...	432	476	3,541	4,387	8.2	9.2	0.43	0.54	889	14	5	5
970-979	Anaesthetic Procedures ...	127	396	582	2,168	4.6	5.5	0.07	0.27	518	2	3	5
980-999	Diagnostic Radiographic Techniques ...	848	903	14,968	15,742	17.7	17.4	1.83	1.93	1,510	118	123	70
	Total ...	43,895	61,622	356,877	460,174	8.1	7.5	43.68	56.32				
	Grand Total Male and Female ...	105,517		817,051		7.7		100		103,675	1,058	784	7

Age Distribution of Operation Cases by Sex and Operation

Code of Surgical Procedures	Operation Group	Five Year Age Groups														Total All Ages		
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69		70+	Not Stated
0001-049	Nervous System	30	24	24	63	120	88	113	117	126	157	125	93	93	57	60	2	1,292
0061-089	Endocrine System	30	17	12	25	25	26	25	18	29	22	32	19	19	19	8	....	326
100-189	Eye	311	135	64	80	102	81	80	81	74	105	117	110	150	129	253	....	1,872
190-249	Ear, Nose and Throat	810	1,890	698	502	509	392	279	176	204	202	168	150	135	120	117	2	6,354
250-299	Upper Alimentary Tract	206	411	182	212	270	201	88	93	88	94	81	79	64	74	75	1	2,219
300-349	Thorax	68	22	7	25	30	39	25	21	34	71	71	115	95	92	97	....	812
380-389	Breast	2	1	7	17	9	9	7	3	4	4	3	5	3	7	7	....	88
400-559	Abdomen	464	389	538	446	543	476	454	445	523	517	485	523	527	434	587	3	7,354
560-669	Urinary and Male Genital Organs	817	275	181	111	247	435	639	572	458	337	287	370	462	597	1,072	2	6,862
780-879	Orthopaedic	218	383	446	755	776	612	466	421	367	386	320	330	279	227	312	3	6,301
880-909	Peripheral Circulation	9	7	12	15	25	42	26	38	46	76	58	94	64	65	68	1	646
910-939	Skin and Subcutaneous Tissue	581	460	473	675	663	489	350	273	313	306	286	283	264	216	347	8	5,987
940-999	Other Surgical Procedures	156	81	178	141	148	220	342	415	459	336	303	200	225	240	337	1	3,782
	Male Total, All Operations	3,702	4,095	2,822	3,067	3,467	3,110	2,894	2,673	2,725	2,613	2,336	2,371	2,380	2,277	3,340	23	43,895
Females																		
001-049	Nervous System	27	13	25	43	50	68	105	120	112	132	109	97	66	47	76	....	1,090
0061-089	Endocrine System	38	16	11	22	30	42	36	42	40	45	38	25	14	9	17	....	425
100-189	Eye	312	118	77	59	53	54	55	54	58	81	87	104	93	126	364	4	1,699
190-249	Ear, Nose and Throat	547	1,768	757	657	448	307	223	160	147	157	126	108	80	62	92	....	5,639
250-299	Upper Alimentary Tract	199	431	228	389	375	253	162	131	109	91	89	98	75	56	87	2	2,775
300-349	Thorax	49	22	9	7	15	14	8	21	19	42	41	33	48	30	54	1	413
380-389	Breast	4	1	17	75	165	209	158	139	197	164	115	57	47	48	66	....	1,462
400-559	Abdomen	203	288	545	767	712	622	476	403	424	392	349	392	335	287	464	2	6,661
560-669	Urinary and Male Genital Organs	41	46	30	61	162	146	140	138	129	103	137	151	107	120	189	....	1,700
671-739	Female Genital Tract	19	24	36	723	2,412	3,212	2,996	2,187	1,606	1,164	725	323	182	173	197	2	15,981
740-779	Obstetric	....	....	32	1,606	3,346	2,894	1,293	513	194	16	....	....	....	....	....	....	9,894
780-879	Orthopaedic	188	296	353	333	314	190	220	231	283	318	364	373	352	339	748	2	4,904
880-909	Peripheral Circulation	5	4	8	13	63	113	178	211	184	144	125	109	96	50	74	1	1,378
910-939	Skin and Subcutaneous Tissue	371	372	433	548	360	287	222	192	196	227	227	200	175	144	325	7	4,286
940-999	Other Surgical Procedures	123	78	64	139	285	497	157	260	269	185	274	177	176	203	427	1	3,315
	Female Total, All Operations	2,126	3,477	2,625	5,442	8,790	8,908	6,429	4,802	3,967	3,261	2,806	2,247	1,846	1,694	3,180	22	61,622
	Grand Total, Male and Female	5,828	7,572	5,547	8,509	12,257	12,018	9,323	7,475	6,692	5,874	5,142	4,618	4,226	3,971	6,520	45	195,517

W.A. HOSPITALS, 1972
Patients Discharged by Operation Group and Type of Hospital

Code of Surgical Procedures	Operation Groups	Discharges						Days in Hospital						Average Number of Days in Hospital				Per cent. of Total Bed Days				
		Teaching			Private			Other Govt. and Board			All Hospitals			Teaching		Private		Other Govt. and Board		All Hospitals		
				% for Group			% for Group			% for Group			% for Group			% for Group			% for Group			% for Group
		No.			No.			No.			No.			No.			No.			No.		
001-049	Nervous System	1,286	53.99	829	34.80	267	11.21	2,382	28,084	74.63	6,859	18.23	2,688	7.14	37,631	21.8	8.2	10.0	15.8	3.44	0.84	4.61
061-089	Endocrine System	505	67.24	179	23.83	67	8.92	751	6,707	76.75	1,570	17.97	462	5.29	8,739	13.3	8.8	6.9	11.6	0.82	0.19	1.07
100-189	Eye	1,421	39.79	1,710	47.89	440	12.32	3,571	15,462	55.07	8,241	29.35	4,372	15.57	28,075	10.9	4.8	9.9	7.9	1.89	1.01	3.44
190-249	Ear, Nose and Throat	2,956	24.65	5,819	48.52	3,218	26.83	11,993	15,459	34.55	18,418	41.16	10,871	24.29	44,748	5.2	3.2	3.4	3.7	1.89	2.25	5.48
250-299	Upper Alimentary Tract	944	18.90	1,936	38.77	2,114	42.33	4,994	7,203	45.84	4,664	23.68	3,845	24.47	15,712	7.6	2.4	1.8	3.2	0.88	0.57	1.92
300-349	Thorax	1,157	94.45	28	2.29	40	3.27	1,225	18,722	94.98	191	0.97	798	4.05	19,711	16.2	6.8	19.9	16.0	2.29	0.02	2.41
380-389	Breast	214	13.81	940	60.65	396	25.55	1,550	2,979	26.39	6,472	57.34	1,837	16.27	11,288	13.9	6.9	4.6	7.3	0.36	0.79	1.38
400-559	Abdomen	4,534	32.35	4,927	35.16	4,554	32.49	14,015	61,657	41.31	47,213	31.63	40,379	27.05	149,249	13.6	9.6	8.9	10.7	7.55	5.78	18.27
560-669	Urinary and Male Genital Organs	2,834	33.10	3,283	38.34	2,445	28.56	8,562	28,143	49.54	16,444	28.95	12,220	21.51	56,807	9.9	5.0	5.0	6.6	3.44	2.01	6.95
671-739	Female Genital Tract	2,364	14.79	6,307	39.47	7,310	45.74	15,981	18,295	20.74	36,431	41.31	33,468	37.95	88,194	7.7	5.8	4.6	5.5	2.24	4.46	10.79
740-779	Obstetric	3,972	40.15	3,334	33.70	2,588	26.16	9,894	29,549	39.67	28,756	38.61	16,176	21.72	74,481	7.4	8.6	6.3	7.5	3.62	3.52	9.12
780-879	Orthopaedic	5,187	46.29	3,519	31.41	2,499	22.30	11,205	88,118	66.13	24,216	18.17	20,919	15.70	133,253	17.0	8.9	8.4	11.9	10.78	2.96	16.31
880-909	Peripheral Circulation	571	28.21	972	48.02	481	23.76	2,024	7,497	37.92	7,931	40.12	4,341	21.96	19,769	13.1	8.2	9.0	9.8	0.92	0.97	2.42
910-939	Skin and Subcutaneous Tissue	3,308	32.20	3,260	31.73	3,705	36.07	10,273	34,191	50.85	15,855	23.58	17,189	25.57	67,235	10.3	4.9	4.6	6.5	4.18	1.94	8.23
940-999	Other Surgical Procedures	5,928	83.53	573	8.07	596	8.40	7,097	55,893	90.06	3,351	5.39	2,915	4.69	62,159	9.4	5.9	4.9	8.8	6.84	0.41	7.61
Total, All Operations		37,181	35.24	37,616	35.65	30,720	29.11	105,517	417,959	51.15	226,612	27.74	172,480	21.11	817,051	11.2	6.0	5.6	7.7	51.15	27.74	21.11
		100.00																				

W.A. HOSPITALS, 1972

Patients Discharged by Operation Group and Type of Hospital

Code of Surgical Procedures		Operation Groups		DISCHARGES										Country		State Total		
				Metropolitan					Country									
				Teaching		Private		Government		Total		Private		Govt. and Board			Total	
				Number	% for Group	Number	% for Group	Number	% for Group	Number	% for Group	Number	% for Group	Number	% for Group		Number	% for Group
001-049	Nervous System	...	...	1,286	53·99	812	34·09	126	5·29	2,224	93·37	17	0·71	141	5·92	158	6·63	2,382
061-089	Endocrine System	...	...	505	67·24	170	22·64	34	4·53	709	94·41	9	1·20	33	4·39	42	5·59	751
100-189	Eye	...	...	1,421	39·79	1,657	46·40	238	6·66	3,316	92·86	53	1·48	202	5·66	255	7·14	3,571
190-249	Ear, Nose and Throat	...	...	2,956	24·65	5,652	47·13	1,560	13·01	10,168	84·78	167	1·39	1,658	13·82	1,825	15·22	11,993
250-299	Upper Alimentary Tract	...	...	944	18·90	1,441	28·85	497	9·95	2,882	57·71	495	9·91	1,617	32·38	2,112	42·29	4,994
300-349	Thorax	...	...	1,157	94·45	26	2·12	30	2·45	1,213	99·02	2	0·16	10	0·82	12	0·98	1,225
380-389	Breast	...	...	214	13·81	890	57·42	209	13·48	1,313	84·71	50	3·23	187	12·06	237	15·29	1,550
400-559	Abdomen	...	...	4,534	32·35	4,657	33·23	2,230	15·91	11,421	81·49	270	1·93	2,324	16·58	2,594	18·51	14,015
560-669	Urinary and Male Genital Organs	...	...	2,834	33·10	3,177	37·11	1,423	16·62	7,434	86·83	106	1·24	1,022	11·94	1,128	13·17	8,562
671-739	Female Genital Tract	...	...	2,364	14·79	6,009	37·60	3,944	24·68	12,317	77·07	298	1·86	3,366	21·06	3,664	22·93	15,981
740-779	Obstetric	...	...	3,972	40·15	3,297	33·32	2,076	20·98	9,345	94·45	37	0·37	512	5·17	549	5·55	9,894
780-879	Orthopaedic	...	...	5,187	46·29	3,394	30·29	970	8·66	9,551	82·24	125	1·12	1,529	13·65	1,654	14·76	11,205
880-909	Peripheral Circulation	...	...	571	28·21	929	45·90	257	12·70	1,757	86·81	43	2·12	224	11·07	267	13·19	2,024
910-939	Skin and Subcutaneous Tissue	...	...	3,308	32·20	2,987	29·08	1,656	16·12	7,951	77·40	273	2·66	2,049	19·95	2,322	22·60	10,273
940-999	Other Surgical Procedures	...	...	5,928	83·53	485	6·83	223	3·14	6,636	93·50	88	1·24	373	5·26	461	6·50	7,097
Total, All Operations				37,181	35·24	35,583	33·72	15,473	14·66	88,237	83·62	2,033	1·93	15,247	14·45	17,280	16·38	105,517

W.A. HOSPITALS

Accidents, Poisoning and Violence—Discharged During 1972

I.C.D. Categories	External Cause	Number of Cases		Number Days in Hospital		Average Number Days in Hospital		Per cent. of Total Bed Days		Outcome			
		Male	Female	Male	Female	Male	Female	Male	Female	Dis- charged	Trans- ferred	Died	Deaths per 1,000 Separations
800-807	Railway Accidents	22	2	290	2	13.2	1.0	0.11	0.00	22	2	...	...
810-819	Motor Vehicle Traffic Accidents	3,179	1,564	33,329	15,599	10.5	10.0	12.96	6.07	4,416	254	73	15
820-823	Motor Vehicle Non-Traffic Accidents	119	18	1,002	201	8.4	11.2	0.39	0.08	130	5	2	14
825-827	Other Road Vehicle Accidents	287	204	1,885	984	6.6	4.8	0.73	0.38	481	9	1	2
830-838	Water Transport Accidents	51	8	556	122	10.9	15.3	0.22	0.05	57	1	1	16
840-845	Air and Space Transport Accidents	5	1	14	1	2.8	1.0	0.01	0.00	5	1	...	...
850-859	Accidental Poisoning by Drugs and Medicaments	283	315	1,059	1,663	3.7	5.3	0.41	0.65	586	7	5	8
860-869	Accidental Poisoning by Other Solid and Liquid Substances	464	248	1,311	560	2.8	2.3	0.51	0.22	703	8	1	1
870-877	Accidental Poisoning by Gases and Vapours	31	8	68	9	2.2	1.1	0.03	0.00	39	...	...	...
880-887	Accidental Falls	3,715	2,691	29,918	32,807	8.1	12.2	11.63	12.76	6,056	282	68	10
890-899	Accidents Caused by Fires and Flames	509	253	5,908	2,474	11.6	9.8	2.30	0.96	728	29	5	6
900-909	Accidents Due to Natural and Environmental Factors	478	281	1,746	1,325	3.7	4.7	0.68	0.52	752	6	1	1
910-929	Other Accidents	7,494	2,751	40,194	14,870	5.4	5.4	15.63	5.78	9,998	221	26	2
930-936	Surgical and Medical Complications and Misadventures	985	1,105	16,279	16,783	16.5	15.2	6.33	6.53	1,978	52	60	28
940-949	Late Effects of Accidental Injury	855	453	13,095	7,155	15.3	15.8	5.09	2.78	1,251	45	12	9
950-959	Suicide and Self-inflicted Injury	332	818	2,309	5,219	7.0	6.4	0.90	2.03	1,047	95	8	6
960-969	Homicide and Injury Purposely Inflicted by Other Persons	562	218	3,952	1,314	7.0	6.0	1.54	0.51	755	21	4	5
970-978	Legal Intervention	1	...	5	...	5.0	...	0.00	...	1	...	...	...
980-989	Injury Undetermined Whether Accidentally or Purposely Inflicted	155	303	1,115	1,786	7.2	5.9	0.43	0.69	422	28	8	17
990-999	Injury Resulting from Operations of War	7	...	250	...	35.7	...	0.10	...	7	...	...	...
Total		19,534	11,241	154,285	102,874	7.9	9.2	60.00	40.00	29,434	1,066	275	8
Grand Total, Male and Female		30,775	257,159	8.4		100.00							

I.C.D. Code	External Cause of Injury	Patients Age and Hospital Stay	Fracture of Spine, Skull and Trunk		Fracture of Upper Limb		Fracture of Lower Limb		Dislocation Without Fracture		Spinal Fracture and Dislocation
			N800-N809		N810-N819		N820-N829		N830-N839		
			M	F	M	F	M	F	M	F	
E800-807	Railway Accidents	Patients Avge. Age Avge. Stay	1 23 10.0	..... ..... .....	2 47 8.0	2 67 1.0	5 48 20.0	...............	...............	...............	...............
E810-819	Motor Vehicle Traffic Accidents	Patients Avge. Age Avge. Stay	464 31 17.4	230 35 21.3	216 26 8.2	85 37 10.3	385 29 28.2	151 32 29.8	46 26 9.5	15 35 8.3	70 33 6.4
E820-823	Motor Vehicle Non-Traffic Accidents	Patients Avge. Age Avge. Stay	18 24 14.5	2 29 10.0	8 24 6.8	1 22 35.0	21 24 14.4	..... ..... .....	3 26 9.3	...............	...............
E825-827	Other Road Vehicle Accidents	Patients Avge. Age Avge. Stay	22 25 11.9	13 18 17.4	56 15 2.8	25 12 2.1	33 15 22.1	9 14 10.8	5 26 2.8	5 22 3.6	...............
E830-838	Water Transport Accidents	Patients Avge. Age Avge. Stay	11 38 14.5	1 32 2.0	4 34 3.0	1 63 3.0	7 40 28.9	3 64 35.7	1 32 9.0	...............	...............
E840-845	Air and Space Transport Accidents	Patients Avge. Age Avge. Stay	..... ..... .....	..... ..... .....	..... ..... .....	..... ..... .....	1 21 3.0	...............	...............	...............	...............
E850-859	Accidental Poisoning by Drugs and Medicaments	Patients Avge. Age Avge. Stay	1 34 30.0	...............	...............	...............	...............	...............	...............	...............	...............
E860-869	Accidental Poisoning by Other Solid and Liquid Substances	Patients Avge. Age Avge. Stay	..... ..... .....	..... ..... .....	1 32 1.0	...............	...............	...............	...............	...............	...............
E870-877	Accidental Poisoning by Gases and Vapours	Patients Avge. Age Avge. Stay	..... ..... .....	1 1 2.0	...............	...............	...............	...............	...............	...............	...............
E880-887	Accidental Falls	Patients Avge. Age Avge. Stay	651 33 9.9	287 41 9.5	1,251 21 3.8	1,044 36 4.0	883 38 15.6	811 61 26.2	132 30 6.0	60 42 5.9	8 2 4.1
E890-899	Accidents Caused by Fires and Flames	Patients Avge. Age Avge. Stay	...............	...............	...............	...............	...............	...............	...............	...............	...............
E900-909	Accidents Due to Natural and Environmental Factors	Patients Avge. Age Avge. Stay	11 28 6.5	9 16 4.6	3 20 1.3	1 75 3.0	10 31 7.1	3 12 12.0	3 30 4.7	3 38 24.0	...............
E910	Accidental Drowning & Submersion	Patients Avge. Age Avge. Stay	1 22 4.0	..... ..... .....	..... ..... .....	..... ..... .....	1 18 22.0	2 26 7.0	1 21 7.0	1 65 1.0	...............
E911-912	Inhalation and Ingestion of Food and Other Objects	Patients Avge. Age Avge. Stay	...............	...............	...............	...............	...............	...............	...............	...............	...............
E914-915	Foreign Body Accidentally Entering Eye or Orifice	Patients Avge. Age Avge. Stay	...............	...............	...............	...............	...............	...............	...............	...............	...............
E920	Accidents Caused by Cutting or Piercing Instruments	Patients Avge. Age Avge. Stay	..... ..... .....	..... ..... .....	24 40 5.4	4 26 11.5	3 34 12.3	2 20 1.0	...............	...............	...............
E913 E916-919 E921-929	Other Accidents	Patients Avge. Age Avge. Stay	207 27 8.6	31 24 7.8	136 27 5.2	34 27 1.9	125 28 8.1	25 37 10.5	414 25 6.6	119 37 7.2	70 6.1
E930-936	Surgical and Medical Complications and Misadventures	Patients Avge. Age Avge. Stay	1 36 1.0	..... ..... .....	..... ..... .....	..... ..... .....	..... ..... .....	1 76 68.0	1 59 4.0	...............	...............
E940-949	Late Effects of Accidental Injury	Patients Avge. Age Avge. Stay	47 29 17.1	14 41 22.7	50 31 8.3	22 26 5.0	61 35 23.3	38 50 22.8	9 29 10.6	5 34 5.2	..... ..... 18
E950-959	Suicide and Self-Inflicted Injury	Patients Avge. Age Avge. Stay	1 48 79.0	4 49 44.5	..... ..... .....	..... ..... .....	1 23 6.0	...............	...............	...............	...............
E960-969	Homicide and Injury Purposely Inflicted by Other Persons	Patients Avge. Age Avge. Stay	173 31 6.1	30 32 5.7	14 31 2.8	5 25 8.6	11 32 41.3	6 37 27.0	6 22 1.2	1 13 1.0	..... ..... 2
E970-978	Legal Intervention	Patients Avge. Age Avge. Stay	...............	...............	...............	...............	...............	...............	...............	...............	...............
E980-989	Injury Undetermined Whether Accidentally or Purposely Inflicted	Patients Avge. Age Avge. Stay	..... ..... .....	3 20 23.7	..... ..... .....	..... ..... .....	..... ..... .....	..... ..... .....	1 23 2.0	...............	...............
E990-999	Injury Resulting from Operations of War	Patients Avge. Age Avge. Stay	2 21 114.0	...............	...............	...............	...............	...............	...............	...............	...............
TOTALS	All External Causes	Patients Avge. Age Avge. Stay	1,611 31 12.0	627 37 14.2	1,765 22 4.5	1,241 35 4.4	1,547 34 19.1	1,058 54 26.0	622 31 6.7	208 38 6.8	...............

Internal Cause and Nature of Injury of Accidents, Poisoning and Violence

Intra-cranial Injury Without Skull Fracture		Internal Injury of Chest, Abdomen and Pelvis		Laceration and Open Wound of Head, Neck and Trunk		Laceration and Open Wound of Upper Limb		Laceration and Open Wound of Lower Limb		Laceration and Open Wound of Multiple Location		Superficial Injury		Contusion and Crushing With Intact Skin		Effects of Foreign Body		Burn		Injury to Nerves and Spinal Cord		Adverse Effect of Medicinal Agents		Adverse Effect of Non-Medicinal Substances		Other Adverse Effects		Total				
N850-N854		N860-N869		N870-N879		N880-N887		N890-N897		N900-N907		N910-N918		N920-N929		N930-N939		N940-N949		N950-N959		N960-N979		N980-N989		N990-N999						
M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F			
5 45 2.2				3 48 9.7		1 20 3.0		1 20 91.0				2 61 14.0		1 36 1.0													22 43 13.2	2 67 1.0				
863 24 5.0	418 23 3.7	92 28 14.3	45 31 13.3	267 29 5.7	135 28 6.0	60 31 9.3	9 37 6.4	64 25 12.0	24 33 13.5	87 28 3.7	32 23 4.2	92 23 3.4	43 24 3.0	120 27 4.3	91 33 4.2	1 19 2.0			8 34 33.3	2 37 6.5	6 29 4.5	3 21 5.7			1 2 4.0	312 26 4.4	206 26 3.5	3,154 27 10.4	1,557 29 10.0			
29 14 3.6	4 21 1.8	10 24 7.6	2 13 18.5	5 19 1.6	3 6 2.0	3 28 8.0	2 33 1.5	7 17 7.9			1 42 75.0	2 21 1.0		4 21 2.8					3 22 7.7							1 17 5.0	2 32 1.0	118 23 8.3	18 22 11.2			
102 14 3.9	78 13 2.7	5 19 4.4	3 12 7.0	10 11 2.8	4 18 3.5	6 15 5.2		12 9 2.6	5 9 5.2	4 22 11.3	1 7 1.0	2 7 1.5	5 11 2.0	11 23 7.8	8 17 1.8					1 13 3.0							14 28 3.9	12 13 6.4	286 16 6.6	202 14 4.8		
5 32 5.4	1 21 1.0			4 36 9.3		6 26 2.0		1 16 1.0						2 33 6.5	1 13 3.0				1 34 9.0	1 16 9.0							4 28 5.8	1 38 6.0	49 34 10.9	8 45 15.3		
2 26 1.0	1 66 1.0													1 23 3.0															3 24 3.0	1 66 1.0		
1 2 2.0																						252 8 2.3	270 15 3.1						254 8 2.4	270 15 3.1		
				1 4 1.0		2 31 2.0																						452 5 2.2	246 4 2.2	456 6 2.2	246 4 2.2	
																													30 30 2.1	7 28 1.0	30 25 2.1	8 1.1
360 20 2.5	185 17 1.7	22 28 6.7	9 32 4.7	61 29 4.2	30 32 4.9	7 27 22.1	4 71 10.0	9 27 13.0	13 45 12.2	2 20 1.0	1 16 11.0	8 44 5.8	10 46 22.3	65 29 4.5	53 53 5.9				2 48 28.5	4 45 6.5	1 56 1.0						101 34 5.3	72 45 6.8	3,645 28 7.9	2,630 44 11.6		
								1 29 31.0												505 22 11.6	249 20 9.6							1 50 1.0	1 2 2.0		507 22 11.6	250 20 9.6
11 27 1.3	3 33 1.0	6 42 8.8	3 19 9.0	24 15 6.5	13 9 2.0	7 25 3.3	4 61 2.0	8 28 7.9	6 51 14.2	5 43 11.6	7 39 6.1	9 16 4.1	14 30 4.9	6 26 8.5	2 19 12.5	1 15 1.0											246 22 1.6	125 21 2.2	119 37 5.0	83 42 7.4	471 26 3.5	276 29 4.8
2 28 2.0		1 24 3.0		1 19 1.0	1 14 1.																											

	Injury to Nerves and Spinal Cord		Adverse Effect of Medicinal Agents		Adverse Effect of Non-Medicinal Substances		Other Adverse Effects		Total	
	N950-N959		N960-N979		N980-N989		N990-N999			
	M	F	M	F	M	F	M	F	M	F
2 5		22	2
		43	67
		13.2	1.0
	6	3	1	312	206	3,154	1,557
	29	21	2	26	26	27	29
5	4.5	5.7	4.0	4.4	3.5	10.4	10.0
	1	2	118	18
	17	32	23	22
	5.0	1.0	8.3	11.2
	1	14	12	286	202
	13	28	13	16	14
	3.0	3.9	6.4	6.6	4.8
	1	4	1	49	8
	16	28	38	34	45
	9.0	5.8	6.0	10.9	15.3
	3	1
	24	66
	3.0	1.0
	252	270	254	270
	8	15	8	15
	2.3	3.1	2.4	3.1
	452	246	456	246
	5	4	6	4
	2.2	2.2	2.2	2.2
	30	7	30	8
	30	28	30	25
	2.1	1.0	2.1	1.1
	4	1	101	72	3,645	2,630
	45	56	34	45	28	44
	6.5	1.0	5.3	6.8	7.9	11.6
	1	1	507	250
	50	2	22	20
	1.0	2.0	11.6	9.6
	246	125	119	83	471	276
	22	21	37	42	26	29
	1.6	2.2	5.0	7.4	3.5	4.8
	36	10	46	14
	10	5	13	13
	2.0	1.5	2.9	2.2
	69	58
	33	36
	2.4	2.2
	239	167
	23	24
	3.3	3.1
	6	4	1	2	2	2,131	747
	26	37	39	4	16	27	25
	12.0	1.8	9.0	3.5	3.0	4.4	4.4
	36	14	1	1	555	204	4,927	1,722
	31	42	47	2	30	35	27	28
	7.3	8.0	9.0	15.0	5.2	6.0	5.8	6.0
	75	142	467	462	552	620
	47	51	33	34	35	38
	9.6	9.2	8.4	7.0	8.6	7.6
	12	7	1	1	2	226	178	551	342
	41	29	71	7	4	43	44	34	38
	9.7	7.9	6.0	3.0	1.0	14.3	14.6	14.4	14.8
	1	2	270	735	19	25	2	5	326	804
	19	29	33	30	32	36	27	39	33	30
	9.0	4.5	5.3	5.7	18.3	8.2	10.0	27.2	6.8	6.3
	4	1	1	32	35	545	215
	35	55	4	21	29	31	31
	3.5	1.0	1.0	9.1	8.6	6.6	5.7
	1
	21
	5.0
	86	245	21	2	1	146	280
	44	33	34	50	22	40	33
	6.6	3.4	7.5	2.0	1.0	6.6	3.7
	5
	29
	47.0
	71	31	687	1,394	772	407	1,871	1,273	18,534	10,437
	32	36	27	30	13	12	32	35	27	32
	7.6	6.5	4.8	5.1	2.6	2.6	7.0	7.4	7.2	8.0

HOSPITAL DISCHARGES, 1972
Perth Statistical Division

	Type	Number of Beds	Per cent of Beds	Number of Discharges	Per cent of Discharges	Bed Days	Per cent of Bed Days	Average Length of Stay
Royal Perth	1	904	20·98	25,794	17·82	308,732	24·79	12·0
Sir Charles Gairdner	1	461	10·70	8,734	6·04	132,939	10·67	15·2
St. John of God, Subiaco	2	393	9·12	13,859	9·58	107,748	8·65	7·8
Repatriation General	4	361	8·38	5,756	3·98	98,334	7·89	17·1
Princess Margaret (Children)	1	300	6·96	13,864	9·58	84,139	6·76	6·1
Fremantle.....	1	273	6·34	10,530	7·28	93,817	7·53	8·9
King Edward Memorial (Women)	1	246	5·71	8,016	5·54	54,192	4·35	6·8
St. Anne's.....	2	212	4·92	7,302	5·05	63,056	5·06	8·6
St. John of God, Belmont	2	125	2·90	4,202	2·90	28,457	2·28	6·8
Swan Districts	3	113	2·62	5,781	3·99	36,584	2·94	6·3
Osborne Park	3	94	2·18	4,732	3·27	30,209	2·43	6·4
Mount	2	93	2·16	4,244	2·93	28,144	2·26	6·6
Stirling	2	79	1·83	3,280	2·27	14,564	1·17	4·4
Bicton Medicentre	2	75	1·74	1,332	0·92	7,586	0·61	5·7
Armadale-Kelmscott	3	71	1·65	4,012	2·77	19,058	1·53	4·8
Bentley	3	70	1·62	3,994	2·76	20,878	1·68	5·2
South Perth Community	2	67	1·56	3,552	2·45	21,920	1·76	6·2
Bethesda	2	52	1·21	2,762	1·91	16,059	1·29	5·8
Woodside	3	40	0·93	1,485	1·03	11,857	0·95	8·0
Devonleigh	3	38	0·88	2,032	1·40	8,784	0·71	4·3
St. Joseph's	2	37	0·86	1,512	1·04	9,574	0·77	6·3
Hawthorn	3	29	0·67	1,907	1·32	7,694	0·62	4·0
Avro	2	25	0·58	1,045	0·72	5,787	0·46	5·5
Westminster	2	24	0·56	1,445	1·00	5,014	0·40	3·5
Lucknow	2	22	0·51	496	0·34	4,374	0·35	8·8
Morna	2	21	0·49	1,444	1·00	5,769	0·46	4·0
Harrow	2	18	0·42	241	0·17	4,295	0·34	17·8
Lesmurdie	2	17	0·39	385	0·27	3,103	0·25	8·1
Hillcrest	2	15	0·35	263	0·18	4,307	0·35	16·4
Niola	2	14	0·32	115	0·08	4,557	0·37	39·6
Kwinana	2	12	0·28	549	0·38	2,756	0·22	5·0
Wooroloo	3	7	0·16	46	0·03	1,284	0·10	27·9
Total .....	....	4,308	100·00	144,711	100·00	1,245,571	100·00	8·6

- 1—Teaching Hospital.
2—Private Hospital.
3—Government and Board Hospital.
4—Commonwealth Repatriation.

DISCHARGES FROM WESTERN AUSTRALIAN HOSPITALS BY
STATISTICAL DIVISION OF RESIDENCE—1972

Statistical Division	Estimated Population	Number Patients*	Rate/1,000 Population
Perth	724,800	130,766	180
South West	78,950	22,111	280
Southern Agricultural	45,200	10,869	240
Central Agricultural	52,950	17,982	340
Northern Agricultural	43,200	13,278	307
Eastern Goldfields	43,850	15,810	361
Central	7,350	1,546	210
North West	12,450	3,335	267
Pilbara	27,750	7,311	263
Kimberley	14,150	5,558	393
Metropolitan (Perth)	724,800	130,766	180
Rural (All Others)	325,900	97,800	300
Total State*.....	1,053,182	228,566	217

* Does not include 1,027 discharges for which geographic location was inaccurate or incomplete. Total discharges for the State 1972 were 229,593.

WESTERN AUSTRALIA, 1972

Hospital Discharge Rates by
Statistical Division of Residence

rates per 1,000 population



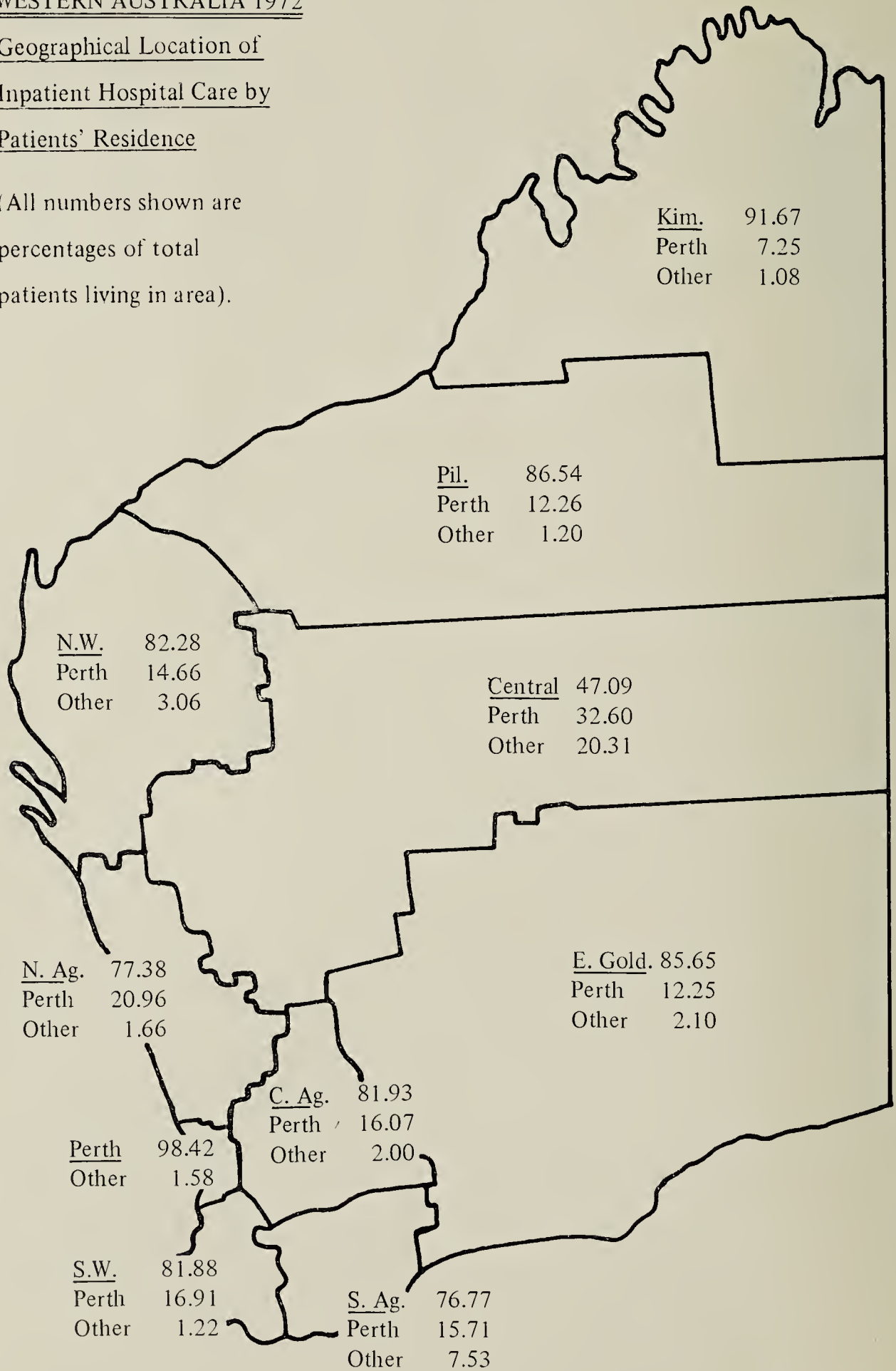
GEOGRAPHIC LOCATION OF IN-PATIENT HOSPITAL CARE
BY PATIENTS' RESIDENCE—1972

Statistical Division of Residence	Statistical Division of Hospitalisation					
	Home		Perth		Other	
	Number	Per cent	Number	Per cent	Number	Per cent
Perth	128,695	98·42	.....	.....	2,071	1·58
South West	18,104	81·88	3,738	16·91	269	1·22
Southern Agricultural	8,344	76·77	1,707	15·71	818	7·53
Central Agricultural	14,733	81·93	2,889	16·07	360	2·00
Northern Agricultural	10,275	77·38	2,783	20·96	220	1·66
Eastern Goldfields	13,542	85·65	1,936	12·25	332	2·10
Central	728	47·09	504	32·60	314	20·31
North West	2,744	82·28	489	14·66	102	3·06
Pilbara	6,327	86·54	896	12·26	88	1·20
Kimberley	5,095	91·67	403	7·25	60	1·08

WESTERN AUSTRALIA 1972

Geographical Location of
Inpatient Hospital Care by
Patients' Residence

(All numbers shown are
percentages of total
patients living in area).



Appendix XVIII

Derby Leprosarium

Admissions and Discharges for 1972

Month	Admissions						Discharges						Inmates Remaining in Leprosarium				
	Male			Female			Male			Female							
	Ad- mitted	Re-Ad- mitted	Total	Ad- mitted	Re-Ad- mitted	Total	Dis- charged	De- ceased	Ab- sconded	Total	Dis- charged	De- ceased	Ab- sconded	Total	Total Male and Female		
January	1	...	1	...	...	...	3	...	...	3	1	...	...	4	78	48	126
February	1	1	2	...	...	...	3	...	...	3	4	...	...	7	77	44	121
March	...	2	2	...	1	1	6	...	...	6	4	...	...	10	73	41	114
April	...	...	...	...	...	...	3	...	...	3	1	...	...	4	70	40	110
May	...	1	1	...	...	...	6	...	...	6	...	...	...	6	65	40	105
June	...	...	...	...	1	1	1	...	...	1	2	...	...	3	64	39	103
July	...	...	...	...	...	...	2	...	...	3	...	...	...	3	61	39	100
August	...	...	...	...	...	...	3	1	...	3	1	...	...	4	58	38	96
September	...	...	...	1	...	1	1	...	...	1	1	...	...	2	57	38	95
October	...	...	...	...	1	1	4	...	...	4	1	...	...	6	53	36	89
November	...	3	3	...	1	4	...	...	...	...	1	...	...	1	56	36	92
December	...	1	1	...	1	2	2	...	...	2	3	1	...	4	55	33	88
Total	2	8	10	1	5	6	34	1	...	35	19	2	...	21	...	...	...

Appendix XIX

Incidence and Mortality of Notifiable Diseases

Diseases Notifiable	1969		1970		1971		1972	
	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	(a) Deaths
Amoebiasis	1	....	....	....	2	....	2	....
Ancylostomiasis	22	1	3	....	C.O.S. 1	....	2	....
Anthrax	....	....	....	....	....	....	....	....
Bacillary Dysentery	116	2	256	4	149	2	145	2
Bilharziasis	....	....	....	....	1	....	....	....
Brucellosis	2	....	2	....	1	....	....	....
Cholera	....	....	....	....	....	....	....	....
Diphtheria	....	....	2	....	1	....	2	....
Encephalitis Lethargic	....	1	....	....	....	....	....	1
Filariasis	C.O.S. 1	....	1	....	C.O.S. 1	....	....	....
Homologous Serum Jaundice	....	N.A.	....	N.A.	....	N.A.	....	N.A.
Hydatid	1	1	....	....	2	....	....	....
Infective Hepatitis	146	4	166	4	291	3	163	4
Leprosy	39	1	28	1	25	2	10	1
Leptospirosis	....	....	....	....	....	....	2	....
Malaria	3	....	10	....	C.O.S. 19	....	C.O.S. 14	....
Meningococcal Infection	6	3	5	4	5	2	3	2
Ornithosis	1	....	....	....	....	....	....	....
Paratyphoid	....	....	....	....	1	....	....	....
Plague	....	....	....	....	....	....	....	....
Poliomyelitis	....	....	....	....	....	1	4	2
Puerperal Fever	1	....	2	....	2	1	....	....
Relapsing Fever	....	....	....	....	....	....	....	....
Salmonella Infection (A)	173	....	152	2	224	5	123	5
Scarlet Fever	23	....	27	....	18	....	22	....
Small pox	....	....	....	....	....	....	....	....
Tetanus	1	....	....	....	4	1	....	....
Tuberculosis	160	10	148	12	143	21	155	11
Typhoid Fever	3	....	1	....	1	....	2	....
Typhus Fever	....	....	....	....	....	....	1	....
Yellow Fever	....	....	....	....	....	....	....	....

(A) Other salmonella infection.

(a) Preliminary.

N.A. = Not available.

C.O.S. = Contracted out of State.

Appendix XX

Stillbirth and Infant Mortality Rates W.A. ^(a)

Year				Total Births Including Stillbirths	Stillbirth Rates	Under One Week	Mortality Rates Under One Month	Over One Month and Under One Year	Total Mortality Rates Under One Year	Total Mortality Rates Under One Year Including Stillbirths
1946	....	....	....	12,398	23·1	17·1	20·6	9·6	30·3	53·4
1947	....	....	....	13,178	23·2	16·9	19·4	13·2	30·2	53·4
1948	....	....	....	13,197	20·5	16·9	18·7	8·4	25·0	45·5
1949	....	....	....	13,779	19·4	16·2	19·0	6·8	25·9	45·3
1950	....	....	....	14,468	16·6	16·2	18·0	8·6	26·7	43·3
1951	....	....	....	15,091	19·7	16·2	19·7	8·5	28·2	47·9
1952	....	....	....	15,697	18·1	15·5	17·7	6·9	24·5	42·6
1953	....	....	....	16,130	16·6	13·4	16·2	7·3	23·4	40·0
1954	....	....	....	16,198	16·7	14·2	15·8	6·4	22·2	38·9
1955	....	....	....	16,862	14·2	13·3	15·8	6·3	22·1	36·3
1956	....	....	....	17,142	13·2	13·0	15·7	6·7	22·4	35·6
1957	....	....	....	17,172	14·4	13·6	14·9	5·9	20·8	35·2
1958	....	....	....	16,956	13·3	12·8	14·2	7·1	21·2	34·5
1959	....	....	....	17,336	13·0	12·3	13·6	6·3	19·9	32·9
1960	....	....	....	17,152	13·2	13·9	15·7	5·7	21·3	34·5
1961	....	....	....	17,318	13·9	10·3	12·6	6·8	19·4	33·3
1962	....	....	....	17,267	11·8	12·6	14·3	7·7	22·0	33·8
1963	....	....	....	17,468	10·2	12·3	14·7	5·5	20·2	30·4
1964	....	....	....	16,855	10·1	11·8	12·9	6·6	19·5	29·5
1965	....	....	....	16,367	11·1	12·8	15·0	6·5	21·4	32·5
1966	....	....	....	17,368	10·0	12·4	14·4	5·4	19·7	29·8
1967	....	....	....	18,211	10·3	11·4	13·0	4·3	17·2	27·6
1968	....	....	....	19,784	12·3	13·3	14·7	5·5	20·1	32·3
1969	....	....	....	21,004	11·9	13·9	15·3	6·2	21·6	33·5
1970	....	....	....	21,913	13·5	12·4	14·4	6·6	20·9	34·4
1971	....	....	....	24,537	12·1	11·0	12·4	6·5	18·9	31·1
1972	....	....	....	22,435	11·5	9·2	10·3	5·2	15·5	27·0

(a) For 1965 and earlier years, exclude Full-blood Aborigines. From 1966, Aborigines are included. In above table, all rates are calculated in deaths per 1,000 total births, including stillbirths.

For 1968 and later years, the term “ stillbirth ” refers to a child of at least 20 weeks gestation, not born alive.

STILLBIRTH AND INFANT MORTALITY RATES (a) (b)

Area of Registration				Total Births Including Stillbirths (c)	Stillbirth Rates (c)	Infant Mortality Rates				Total Mortality Infant Deaths and Stillbirths
						Under One Week	Under One Month	One Month and Under One Year	Total Under One Year	
1971—				65,364	10·1	....	....	....	16·3	26·4
New Zealand	....	....	....				
1972—				22,435	11·5	9·2	10·3	5·2	15·5	27·0
Western Australia	....	....	....	96,429	11·9	11·7	12·8	4·4	17·2	29·2
New South Wales	....	....	....	(d) 72,634	11·4	9·7	10·7	3·7	14·4	25·8
Victoria	....	....	....	39,670	10·6	11·1	12·3	5·3	17·6	28·1
Queensland	....	....	....	(d) 7,824	N.A.	7·0	....	....	16·2	(e) 16·2
Tasmania	....	....	....	22,073	10·4	10·4	11·7	4·9	16·6	27·0
South Australia	....	....	....				

- (a) Rates calculated per 1,000 total births including stillbirths.
- (b) Infant mortality defined as deaths occurring from birth to one year of age.
- (c) The term “ stillbirth ” refers to a child, not born alive, of at least 20 weeks gestation (for W.A., N.S.W. and S.A.) or 28 weeks gestation (for New Zealand, Victoria, Queensland and Tasmania).
- (d) Live births only.
- (e) Infant deaths only.

INFANT MORTALITY (a)

Year							Births	Infant Mortality Per 1,000 Live Births
1946	....	....	....	....	....	....	12,105	31.1
1947	....	....	....	....	....	....	12,874	30.9
1948	....	....	....	....	....	....	12,931	25.6
1949	....	....	....	....	....	....	13,511	26.4
1950	....	....	....	....	....	....	14,228	27.1
1951	....	....	....	....	....	....	14,794	28.7
1952	....	....	....	....	....	....	15,413	24.9
1953	....	....	....	....	....	....	15,862	23.8
1954	....	....	....	....	....	....	15,928	22.5
1955	....	....	....	....	....	....	16,623	22.4
1956	....	....	....	....	....	....	16,916	22.7
1957	....	....	....	....	....	....	16,924	21.1
1958	....	....	....	....	....	....	16,731	21.5
1959	....	....	....	....	....	....	17,111	20.2
1960	....	....	....	....	....	....	16,926	21.6
1961	....	....	....	....	....	....	17,078	19.7
1962	....	....	....	....	....	....	17,064	22.3
1963	....	....	....	....	....	....	17,290	20.4
1964	....	....	....	....	....	....	16,685	19.7
1965	....	....	....	....	....	....	16,186	21.7
1966	....	....	....	....	....	....	17,194	19.9
1967	....	....	....	....	....	....	18,023	17.4
1968	....	....	....	....	....	....	19,541	20.4
1969	....	....	....	....	....	....	20,754	21.8
1970	....	....	....	....	....	....	21,618	21.2
1971	....	....	....	....	....	....	24,239	19.1
1972	....	....	....	....	....	....	22,177	15.7

(a) For 1965 and earlier years, excludes full-blood Aborigines. From 1966 Aborigines are included.
Infant mortality defined as deaths occurring from birth to one year of age.

COMPARISON OF INFANT MORTALITY AND GENERAL DEATH RATE

Place			Infant Mortality Rate (a)					General Death Rate (c)				
			1968	1969	1970	1971	1972	1968	1969	1970	1971	1972
New Zealand (b)	....	....	18.7	16.9	16.7	16.5	....	8.88	8.69	8.81	8.49	8.50
Western Australia (c)	....	....	20.4	21.8	21.2	19.1	15.7	8.16	7.69	7.59	7.57	7.04
New South Wales (c)	....	....	18.7	18.9	19.7	17.4	17.5	9.58	9.15	9.62	9.04	8.91
Victoria (c)	....	....	14.4	15.0	14.5	14.7	14.4	9.00	8.55	8.79	8.72	8.40
Queensland (c)	....	....	20.3	18.9	17.9	19.2	17.8	9.29	8.95	9.50	8.93	8.86
South Australia (c)	....	....	16.3	15.8	16.2	15.9	16.8	8.83	8.19	8.75	8.23	8.21
Tasmania (c)	....	....	17.2	16.5	14.2	13.7	16.2	8.64	8.59	8.18	8.42	8.21

(a) Infant deaths per thousand live births. (Deaths under one year of age.)
(b) Includes Maoris.
(c) Australian general death rates for 1968 to 1971 revised in accordance with the final results of the 1971 Census.

Appendix XXI

Western Australia Stillbirth and Birth Rates ^(a)

Year	Mean Population Year Ended 31st December	Live Births		Stillbirths ^(b)	
		Number	Rate per 1,000 Mean Population	Number	Rate per 1,000 Total Births
1950	557,878	14,228	25·50	240	16·59
1951	580,317	14,794	25·49	297	19·68
1952	600,615	15,413	25·66	284	18·09
1953	621,034	15,862	25·54	268	16·62
1954	639,963	15,928	24·89	270	16·67
1955	657,323	16,623	25·29	239	14·17
1956	674,459	16,916	25·08	226	13·18
1957	687,448	16,924	24·62	248	14·44
1958	699,915	16,731	23·90	225	13·27
1959	711,737	17,111	24·04	225	12·98
1960	722,900	16,926	23·41	226	13·18
1961	737,596	17,078	23·15	240	13·86
1962	766,205	17,064	22·58	203	11·76
1963	788,457	17,290	22·23	178	10·19
1964	808,300	16,685	20·93	170	10·09
1965	826,481	16,186	19·85	181	11·06
1966	849,112	17,194	20·25	174	10·02
1967	879,815	18,023	20·48	188	10·32
1968	915,757	19,541	21·34	243	12·28
1969	955,660	20,754	21·72	250	11·90
1970	994,201	21,618	21·74	295	13·46
1971	1,031,614	24,239	23·50	298	12·15
1972	1,056,508	22,177	20·99	258	11·50

(a) Mean population : Figures prior to 1962 exclude full-blood Aborigines.
Births : For 1965 and earlier years figures exclude full-blood Aborigines ; from 1966 Aborigines are included.
A line drawn across the columns indicates a break in the series.
Birth rates from 1966 have been revised in accordance with the final results of the 1971 Census.

(b) From 1st January, 1968, the term “ stillbirth ” for registration purposes, refers to a child of at least 20 weeks gestation, not born alive. Previously it was restricted to cases where the gestation period was at least 28 weeks.

Appendix XXII

MATERNAL MORTALITY

Period				Average Annual Live Births	Average Annual Maternal Deaths	Average Annual Rate
1901-1905	....	....	....	6,681	28·0	4·19
1906-1910	....	....	....	7,691	43·4	5·64
1911-1915	....	....	....	8,844	39·4	4·46
1916-1920	....	....	....	7,726	41·4	5·36
1921-1925	....	....	....	8,056	34·2	4·25
1926-1930	....	....	....	8,748	46·8	5·35
1931-1935	....	....	....	8,062	35·4	4·39
1936-1940	....	....	....	8,877	32·4	3·65
1941-1945	....	....	....	10,408	24·4	2·34
1946-1950	....	....	....	13,130	21·4	1·63
1951-1955	....	....	....	15,724	13·8	0·88
1956-1960	....	....	....	16,922	8·2	0·48
1961-1965	....	....	....	16,861	5·0	0·30
1966-1970	....	....	....	19,426	4·0	0·21

Year			Live Births	Deaths from									
				Puerperal Septicaemia		Other Puerperal Infection		Abortion		All Other Complications of Pregnancy and of the Puerperal State		All Complications of Pregnancy and the Puerperal State	
			No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	
1946	....	....	12,105	....	....	3	0·25	5	0·41	18	1·49	26	2·15
1947	....	....	12,874	1	0·08	1	0·08	8	0·62	22	1·71	32	2·49
1948	....	....	12,981	2	0·15	4	0·31	1	0·08	13	1·00	20	1·55
1949	....	....	13,511	....	....	2	0·15	3	0·22	11	0·81	16	1·18
1950	....	....	14,288	....	....	2	0·14	1	0·07	10	0·70	13	0·91
1951	....	....	14,794	....	....	2	0·14	3	0·20	11	0·74	16	1·08
1952	....	....	15,413	....	....	3	0·19	3	0·19	12	0·78	18	1·17
1953	....	....	15,862	....	....	....	....	1	0·06	8	0·50	9	0·57
1954	....	....	15,928	....	....	....	....	5	0·31	7	0·44	12	0·75
1955	....	....	16,623	....	....	....	....	1	0·06	13	0·78	14	0·84
1956	....	....	16,916	....	....	....	....	2	0·12	7	0·41	9	0·53
1957	....	....	16,924	....	....	....	....	3	0·18	8	0·47	11	0·65
1958	....	....	16,731	....	....	....	....	1	0·06	7	0·42	8	0·48
1959	....	....	17,111	....	....	....	....	1	0·06	4	0·23	5	0·29
1960	....	....	16,926	1	0·03	....	....	3	0·18	4	0·24	8	0·47
1961	....	....	17,078	....	....	....	....	2	0·12	5	0·29	7	0·41
1962	....	....	17,064	....	....	....	....	1	0·06	4	0·23	5	0·29
1963	....	....	17,290	....	....	....	....	1	0·06	3	0·17	4	0·23
1964	....	....	16,685	....	....	....	....	3	0·18	3	0·18	6	0·36
1965	....	....	16,186	....	....	....	....	1	0·06	2	0·12	3	0·19
1966	....	....	17,194	....	....	....	....	1	0·06	6	0·35	7	0·41
1967	....	....	18,023	....	....	....	....	....	....	2	0·11	2	0·11
1968	....	....	19,541	....	....	....	....	....	....	5	0·26	5	0·26
1969	....	....	20,754	....	....	....	....	....	....	3	0·14	3	0·14
1970	....	....	21,618	....	....	....	....	....	....	3	0·14	3	0·14
1971	....	....	24,239	1	0·04	....	....	....	....	2	0·08	3	0·12
1972 (a)	....	....	22,177	....	....	....	....	....	....	3	0·14	3	0·14

(All rates per thousand live births.)
(a) Deaths for 1972 are preliminary.

MATERNAL MORTALITY RATES PER THOUSAND LIVE BIRTHS

Place	1964	1965	1966	1967	1968	1969	1970	1971	1972
Western Australia (a)	0·33	0·19	0·41	0·11	0·26	0·14	0·14	0·12	(c) 0·14
New Zealand (b)	0·26	0·17	0·32	0·17	0·24	0·20	0·22	0·22	N.A.
New South Wales (a)	0·34	0·32	0·28	0·24	0·34	0·17	0·25	0·15	0·10
Victoria (a)	0·31	0·36	0·25	0·20	0·20	0·14	0·25	0·23	(c) 0·08
Queensland (a)	0·29	0·30	0·40	0·26	0·31	0·22	0·21	0·25	0·15
Tasmania (a)	0·24	0·40	0·27	0·27	0·48	0·12	0·37	Nil	0·13
South Australia (a)	0·33	0·34	0·20	0·20	0·14	0·32	0·31	0·22	0·18

(a) For 1965 and earlier years excludes Full-blood Aborigines. In 1963, and subsequent years, Aborigines are included.
(b) Non-Maori.
(c) Preliminary.

Appendix XXIII

Revenue and Expenditure for the Calendar Year 1972

	<i>Revenue</i>						\$	\$
Licences—								
Fumigation	3	
Poisons Act	5,233	
Radioactive Sub. Act	492	
Private Hospitals	3,454	
Clean Air Act...	10,851	
Anatomy	583	
								20,616
Fees—								
Optical Dispenses	15	
Fish Inspection	9,250	
Meat Inspection	140,605	
Building Inspections	3,410	
Health Inspections	6,794	
Pest Control	1,913	
Perth Medical Officers	1,424	
Pesticides Reg.	2,452	
Photographic Charges	465	
Septic Tank Plans	48,316	
								214,644
Miscellaneous—								
Staff Rents	12,580
Sales of Biscuits	499
Miners X-ray Recoup	1,200
Other Revenue	8,393
Laboratories—								
Fees and Services	615,785
Dental—								
Fees	163,074
T.B. Control—								
Maintenance Recoup from Commonwealth	903,762
Capital Recoup from Commonwealth	88,333
Health Vote Base Year Transfer	155,702
Administration	64,170
								\$2,248,758

1972

Expenditure

								\$
Salaries (including Administration and Other Health Services)	....							1,124,614
Administration Expenses....	....	....	....	....	....	....		181,085
Printing and Stationery	....	....	....	....	....	....		34,632
Government Employees Housing Rent	....	....	....	....	....	....		16,955
Child Health Services—							\$	
Salaries	....	....	....	....	....	....	606,477	
Generally	....	....	....	....	....	....	112,706	
								719,183
Dental Health Services—								
Salaries	....	....	....	....	....	....	305,499	
Generally	....	....	....	....	....	....	120,826	
Dental Bursaries	....	....	....	....	....	....	59,537	
Mobile Clinics	....	....	....	....	....	....	830	
North West Clinics	....	....	....	....	....	....	62,949	
Others	....	....	....	....	....	....	46,893	
								596,534
Epidemiology—								
Salaries	....	....	....	....	....	....	125,701	
Generally	....	....	....	....	....	....	50,161	
V.D. Clinic	....	....	....	....	....	....	28,755	
								204,617
Community Health Service—								
Salaries	....	....	....	....	....	....	82,887	
Generally	....	....	....	....	....	....	51,818	
								134,705
Laboratories—								
Salaries	....	....	....	....	....	....	1,490,433	
Generally	....	....	....	....	....	....	602,631	
Cadetships Lab. Tech.	....	....	....	....	....	....	24,094	
								2,117,158
T.B. Control—								
Salaries	....	....	....	....	....	....	335,560	
Generally	....	....	....	....	....	....	209,292	
							544,852	
Recoup to Sir Charles Gairdner Hospital	....						574,401	
								1,119,253
Nursing Service—								
For 6 months to 30th June, 1972, now part of Hospital Fund	....	....	....	....	....	....		44,680
Other Health Services—								
Pharmaceutical Services	....	....	....	....	....	....	9,870	
Medical Illustrations and Photography	....	....	....	....	....	....	17,985	
Health Services	....	....	....	....	....	....	13,085	
Health Surveyors and Inspectors	....	....	....	....	....	....	37,008	
Pest Control	....	....	....	....	....	....	6,188	
Library and Technical Information Service	....	....	....	....	....	....	18,291	
Occupational Health	....	....	....	....	....	....	4,060	
Clean Air Act....	....	....	....	....	....	....	31,859	
Radioactive Substances	....	....	....	....	....	....	250	
Statistics	....	....	....	....	....	....	15,146	
Polio	....	....	....	....	....	....	24,469	
Poisons information centre	....	....	....	....	....	....	5,232	
Fly Eradication	....	....	....	....	....	....	450	
Infectious Diseases Miscellaneous	....	....	....	....	....	....	7,665	
Chiropody Services	....	....	....	....	....	....	3,313	
Guthrie Testing	....	....	....	....	....	....	4,987	
Paraplegic	....	....	....	....	....	....	1,403	
Abatement of Noise	....	....	....	....	....	....	209	
Geriatrics	....	....	....	....	....	....	1,969	
Miners X-ray	....	....	....	....	....	....	2,695	
Speech Therapy Bursaries	....	....	....	....	....	....	13,609	
								219,743
GRAND TOTAL	....	....	....	....	....	....		\$6,513,159

